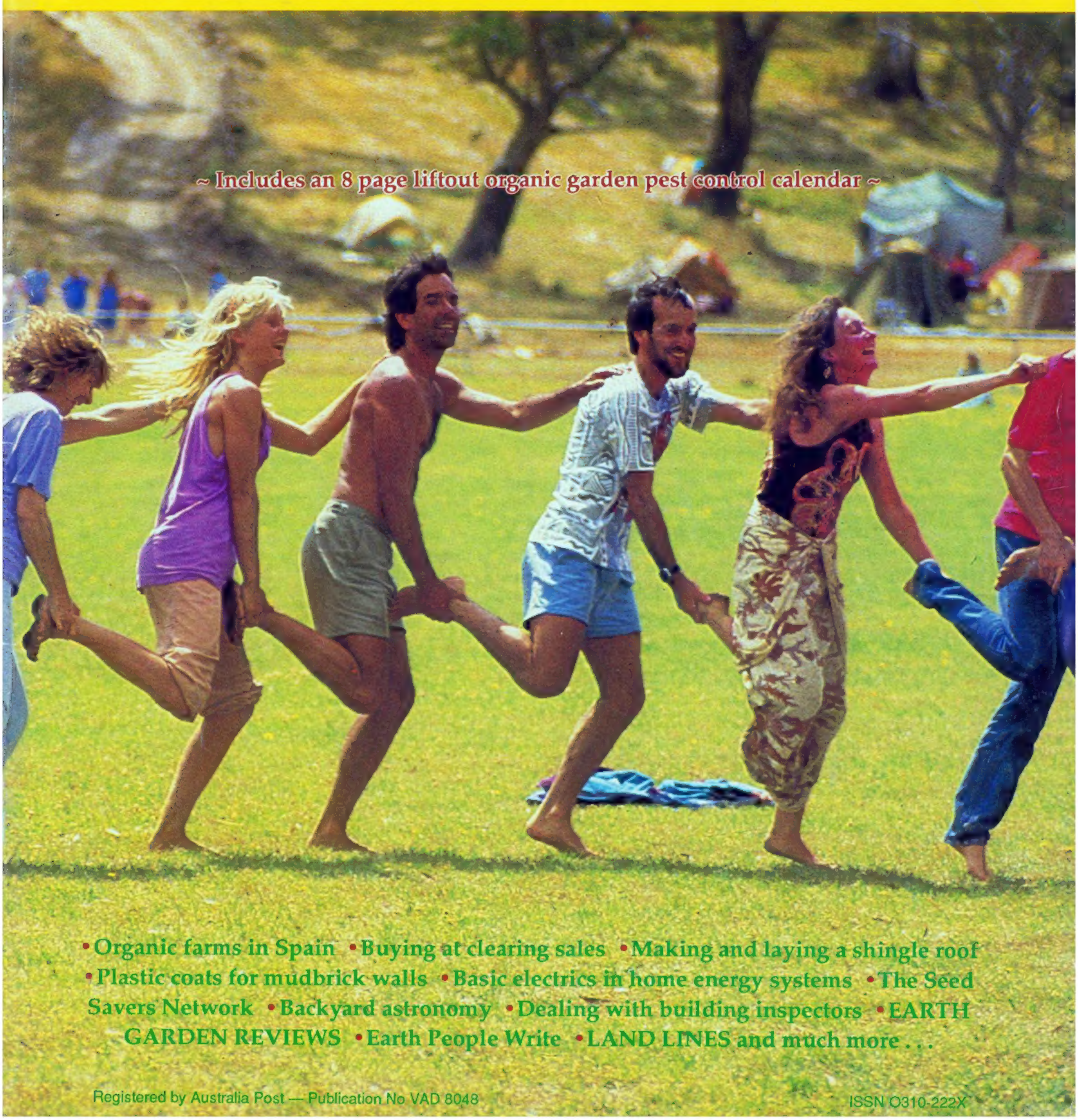
Includes tree tax Number 64 — December 1988/January 1989 $3.25

–SELF SUFFICIENCY AND PLANET CARE–

EARTH GARDEN

—FOR BUSH OR CITY ALTERNATIVES—



~ Includes an 8 page liftout organic garden pest control calendar ~

• Organic farms in Spain • Buying at clearing sales • Making and laying a shingle roof • Plastic coats for mudbrick walls • Basic electrics in home energy systems • The Seed Savers Network • Backyard astronomy • Dealing with building inspectors • EARTH GARDEN REVIEWS • Earth People Write • LAND LINES and much more . . .

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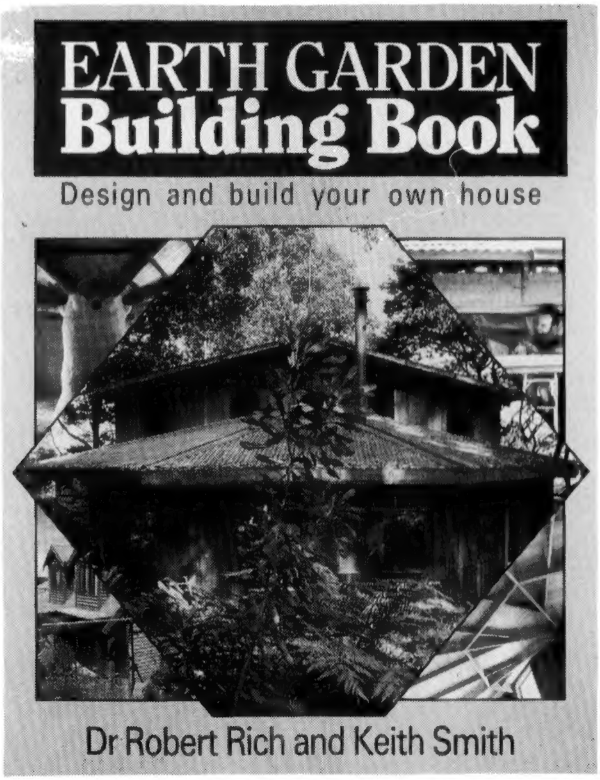
EARTH GARDEN BOOKS

Order form on page 56



EARTH GARDEN
Building Book
Design and build your own house
Dr Robert Rich and Keith Smith

EARTH GARDEN BUILDING BOOK

Design and build your own house

Dr Robert Rich and Keith Smith

Nelson, 1987, 315 pages, illustrated, large format paperback.

This is the book many people have been waiting for since they first dreamt of building their own home from natural materials in harmony with their surroundings. It answers all the questions for Australian owner-builders. It's a 'practical book for dreamers' and it faces the difficult subjects square on. What the authors have done is show how anyone of average intelligence and reasonable health can build their own home, and probably not end up with a 25 year mortgage at the end of it all.

"This book is intended to provide an antidote to the stereotyped Australian suburban sprawl of red brick houses with red tile roofs, set squarely in a rectangle of ground," said authors Bob Rich, and former Earth Garden publisher and editor, Keith Smith.

AT LAST! EG BINDERS TO PROTECT YOUR COLLECTION

These sturdy magazine binders have recently been produced to protect your collection of back issues. Each binder snugly holds 12 copies of Earth Garden, and prevents tears, dog ears and bent pages. The binders are made from a tough, 'deer-hide tan' vinyl, with the Earth Garden name and logo stamped in gold foil on the cover and spine.

ENERGY WORKS!

Home Energy Systems

By Keith Smith

Nelson, Melbourne, 1985, large format paperback, 211 pages, illustrated. ☐ $19.95 posted.

Why spend the rest of your life paying someone else for your electricity? Here's how to plug in the renewable energy of the sun, wind or water using an efficient 12V or 240V solar electric system, wind generator or water turbine. Run lights, radio, TV, computers, tools and appliances wherever you live.

"The major part of this book is devoted to practical issues, hardware and actual installations.

". . . This book should appeal to anyone wth an interest in the supply of energy to weekenders, farms or other remote dwellings or even to the suburban household." — Dr C. J. L. Cornish of Murdoch University, WA, in *APACE WA Newletter*.

HARD TIMES HANDBOOK

Survive — and thrive!

Keith & Irene Smith

Nelson, 1986, 204 pages, 70 illustrations. ☐

This is the second, corrected edition of our practical book of skills, strategies and short-cuts for urban survival. HARD TIMES HANDBOOK outlines a new, self-reliant approach to city living. It tells you how to do more with less, be prepared for food shortages and emergencies, save energy, make money without a job and manage your food supply. Make bread, yoghurt, soft cheese, candles and soap. There are 150 recipes for cheap, healthy tucker and 180 money-saving household hints.

-SELF SUFFICIENCY AND PLANET CARE-

EARTH GARDEN

—FOR BUSH OR CITY ALTERNATIVES—

Number 64 — December '88/January '89

People at ConFests always enjoy themselves — like with this Oki-Do yoga circle at ConFest '87. This year ConFest will be held on the Murray River at Walwa from 29 December to 2 January. Contact DTE, PO Box 321 Richmond, 3121 for details.

•This issue's tree tax is being used to produce a pamphlet on behalf of groups in Tasmania fighting a billion dollar chemical wood pulp mill, proposed for a site near Devonport, which would consume 1.8 million tonnes of native forest per year, if allowed to proceed.

•Cover photo by Charles MacFarland.

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Founded by Keith & Irene Smith, 1972.

Published and edited by Camille and Alan Thomas.

EARTH GARDEN is Australia's original journal of self-sufficiency and alternatives. It is intended as a forum of practical ideas, shared knowledge, sources and to point towards alternatives to unfulfilling consumerist lifestyles.

It's about putting a roof over your head, growing your own food organically, aiming for appropriate, renewable home energy systems, and surviving - and thriving - in the city or the bush, with the inner changes which follow when you're in harmony with Nature.

Book and back issue orders: Gai Hovey.
Secretary: Deborah Glosz.

Book Review Editor: Sophie Masson.
Illustrations by Bronwyn Halls.

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Contributions to EARTH GARDEN are welcome — sharing information and experiences with other readers strengthens the network of Earth Gardeners.

Photos, illustrations and diagrams are important when sending us contributions.

Subscribers are sustainers — for subscription details see page 56.

We welcome advertisements appropriate to the aims and ideals of EARTH GARDEN, but reserve the right to refuse ads at our discretion. Write to us for display rates.

Printed by Industrial Printing & Publicity, 122 Dover St, Richmond, 3121, thanks to Alby, Geoff, John, Clarence and the crew.

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Dear readers,

Welcome to the December issue of Earth Garden. For most of this year we've had so many good stories to publish that we've had a difficult time fitting them all in. This month we decided to include Jackie French's excellent 'Organic Garden Pest Control Calendar' as a lift-out section bound in the middle of the magazine. You can either remove it for reference (without disturbing the page numbering) or leave it where it is and remember which issue of EG it's in when you want to use it throughout the year.

The extra eight pages eased the traffic jam slightly but we still have lots of articles lined up — so if you've sent us something which we've accepted, don't despair: it'll be published soon!

On page 45 there is an advertisement for The Great Tasmanian Forest Walk, which sounds so interesting we hope to be participating ourselves for part of it. So if any readers are interested, we might see you there in early February. The walk extends from Penguin on the north coast to South Cape Bay at the southern tip of Tasmania, and lasts from New Years' Eve till the 5th of February (although you can join and leave at any time).

In this issue there is an article about the important work of the Seed Savers Network. The prospect of total control of the world's food supply by five multinational seed companies is frightening and we all need to support the vital work initiated by Jude and Michel Fanton of the SSN. In a recent letter one reader suggested we start compiling lists of groups such as the SSN, organic gardening and farming societies, and owner builder groups around the country. We think this is an excellent idea and, starting with the next issue, we'll be publishing an Access listing every second issue of such groups, and their membership contacts. If you see that your group isn't on the first list, write and tell us, and we can expand it to be a comprehensive and accurate listing. If you want to tell people about a festival or field day give us your details well in advance, and we can include them in the new Access listing.

As we have been warning throughout the year, we have to pass on our mounting costs in producing Earth Garden, from this issue onwards. We have tried to delay this increase but can't hold off any longer. This is the first increase in the cover price for just over four years. We don't need to bore you with all the costs that have increased out of sight in that time — we all know what it's like, and we both hate it when small businesses moan about their costs. We hope we won't need to raise the cover price again for a couple of years, and if more readers subscribe, we won't lose half the cover price in distribution costs, so we'll be able to have fewer rises.

Subscribers will notice that attached to your subscription renewal slip are some questions about Earth Garden. Every publisher tries to bring their readers the types of articles they want and we'd be grateful if you fill in the form when you send in your sub. Thanks. We constantly wonder about particular articles: should we run this one, will people dislike it, should we have more of that type of story, and we've agreed that the 'questionnaire' will resolve a few disagreements over some editorial policies!

In the Federal Senate the Australian Democrats have initiated a Select Committee into the use of agricultural and veterinary chemicals. This inquiry has been a long time coming — it was strongly opposed through strenuous lobbying by the chemical industry, the National Farmers' Federation, and the Liberal & National parties — and is a tribute to the persistence of Democrat Senator Janet Powell. We know that all of us using organic growing methods will be watching the outcome with interest, and we hope it will lead to some positive changes in modern agricultural methods. Access on page 27 has more information.

Merry Christmas from EARTH GARDEN

After a hot and dry early November, our part of Victoria's Central Highlands has been soaked with about five inches of rain in one week. The vegie garden is loving it, and it's good for our newly-planted trees, and we hope we can all enjoy a pleasant summer but a short bushfire season.

Happy reading,

Camille & Alan

A French Christmas cake

by Sophie Masson

Guyra, New South Wales.

CHRISTMAS is a time for the good life, for eating a bit too much more than is really good for you. Here's a recipe from France, which we use every Christmas, rather than having that Anglo-Saxon tradition, the fruit cake. It's an easy, low-fuss cake that doesn't need cooking, can be frozen for up to a month (without its chocolate frosting), and is absolutely delicious. It's called *La Buche de Noel* (Christmas log).

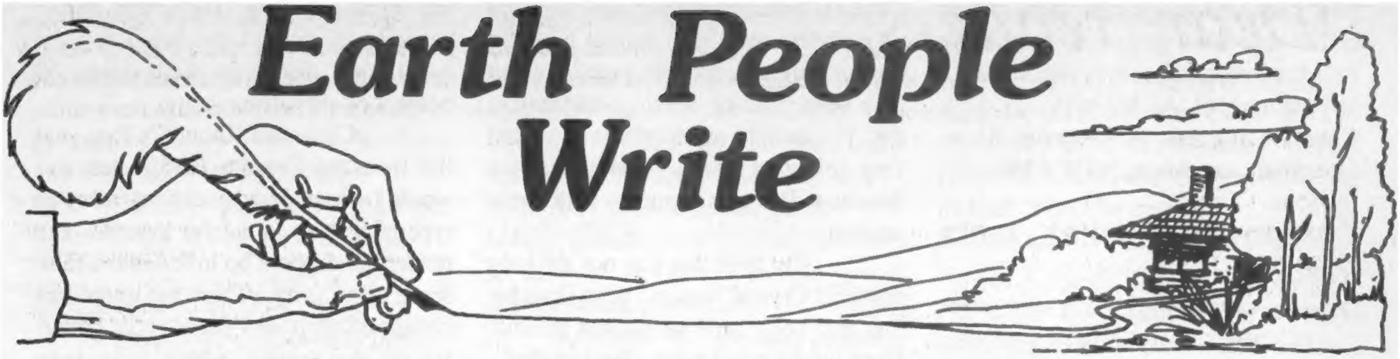
Ingredients

1 pkt Savoiardi biscuits (available from supermarkets)
150 g unsalted butter
4 egg yolks
100 g chocolate
about 5 tablespoons strong coffee
2 tablespoons sugar.

Method

Crush the biscuits to a fine powder. Melt the butter, and mix it into the powdered biscuits, together with the egg yolks, the sugar, and the coffee. Mix well until you have a solid, firm mixture. Shape the mixture into a log and refrigerate for about five or six hours (this is when you can freeze the log for future use). Melt the chocolate and pour it over the log. Refrigerate again for about two or three hours. You can then decorate the log with whatever takes your fancy — angelica, candied flowers, or cream to simulate snow. Happy eating.

Earth People Write



Letters to Earth Garden are always very welcome.

Ozone-friendly fridge wanted

Dear Earth Garden people,

Does anyone know of an alternative refrigerator, one without the gas that harms the ozone layer? I feel we can do our bit by rejecting aerosol cans but fridges are part of the problem too.

Also, does anyone know how to grow beans by beating the bean fly without using poisons. I have given up and just plant snake beans but a friend is still struggling.

We live in the Callide Valley in Central Queensland and would love to meet any earthy people, either living here or passing through. We are trying to start an organic growing group so anyone interested can get in touch.

Lyn Dennis, C/- Post Office, Jambin, Qld, 4702.

Dear Earth Garden,

Your new format and willingness to celebrate Australia's Aboriginal heritage and understanding have won me over. Thanks for a good magazine which I recommend to friends. Have also ordered a Hot Drum on the strength of an EG ad.

Neville Curtis, Pt Arthur, Tasmania.

Organic farm for sale

Dear Camille and Alan,

My sons and I have been here on our 25 acre farm for 16 years, following organic farming principles successfully all that time. Now the time has come for me to move on, as the elder boy is at Queensland Ag College with intentions of taking up beekeeping there, and the younger one's hoping to enter the Air Force, so it would be too much for me on my own.

The really sad part is that 16 years of organic farming could be wasted if an inorganic buyer gets the place! We've registered 92 species of birds, including wedge tails and a pelican, and often see echidna and roos on our adjoining 20 acre Crown leasehold.

It's been a top place to raise children — good schools (primary only has 90 children) and our dams for swimming — one with an island, flying fox and rope/tyre swing for 'bombing', plus tractor tube boat with golf umbrella 'sail'. Great for kids!

I just hope we get as good a small place later. The soil's so good here we run 70 cashmere goats, 30 coloured sheep and four cows without trouble, with the lease for emergency only. We have 30 organic beehives. The elder boy went into bees at 10 years of age, won first at Sydney RAS at 14, and has taken out Champion Honey there for the past three years. With organic honey — no drugs, tetramyacin, etc; just healthy bees!

Keep up the good work with EG. My own stack of copies all but fills the shelf in my book case, and are a great reference library. Good gardening and good health,

Jenny Rushbrook, Neranghi Baldry Rd, Cumnock, 2867.

Jenny has a LandLines advertisement in this issue of Earth Garden.

—Camille.

Mudbrick experience opportunity

Dear Earth Garden,

I am in the very early stage of building a mudbrick home in the lower Hunter Valley region (Broke). My plans are going through council and I have made 2200 mudbricks. Being by myself I am finding it a little difficult to be on both ends of the string and am wondering whether there is anyone out there after some building experience for a week, month . . . etc. There is great accommodation on a neighbouring property. If interested please write to: **Kim Torma, 18 Wollombi Rd, Broke, NSW 2330.**

EG lifestyle stories for kids

Dear Readers,

As a parent reading to my children I have noticed a lack of stories which reflect our kind of lifestyle. While it's good for children to read of different ways of living they often want stories about familiar places and values. So, like many parents, I invent them.

This led me to think what a wealth of stories for alternate children there must be with all those other creative Earth Garden parents inventing stories for their offspring. I have started to collect these stories with the view of getting a story book published. So, if you have a story your kids love please send it to me. If you have no time to write it down record it next time you tell it and send me the tape. I'll transcribe it and return the tape to you. All authors will be acknowledged on (think posi-

tive) publication. Please help me to collect as wide a cross section of alternate stories for kids as possible, drawing and poems too! All the best,
Carolyn Burgess, Wychwood, Booralong Rd, Armidale, NSW 2350.

Composting toilet facts needed

Dear Earth Gardeners,

Has anybody got an operational composting toilet, other than the commercial makes (Clivis). I need plans and information on the operation of such a toilet, and any information would be most appreciated.
Jim Turner, PO Box 327, Bridgetown, WA 6255.

Dear Jim,

Earth Garden 46 has three articles on composting loos as well as plans and details of an American book available from Rodale Press. We get quite a few enquiries from readers on this subject—septic tanks don't seem to be a very 'Earth Garden style' of solution to human waste problems. They're expensive and thirsty: our septic system cost us over $2,500 to install, and I often think of the wasted water — even with our dual-flush cistern. We have only 1000 gallons in our water tank and summer hasn't yet begun as I write this. Chris Martin wrote a rather humorous tale about his family's council-approved 'super loo' in EG 46 and we will be asking him for an update seeing it was written three and a half years ago (there you go Chris: fair warning!).

—Alan.

Crystal Waters reader

Dear Camille and Alan,

My recent change of address means fulfilling a subconscious dream, my retirement and a move to Crystal Waters, which is a community development based on permaculture principles. Eighty-three families are involved and it is situated behind the Sunshine Coast a bit further inland from Nambour.

I've neglected my reading of EG's lately through lack of time with the planning of the move north. However, I'll soon have some spare time to catch up with the back log. It will be more meaningful as I put into practice what I've been reading about. Alternative energy would be my special interest and I've followed the articles about the Rainbow Power Company with great interest.

I'm sure that I'm not the only reader at Crystal Waters. Also I can bet that my copy will be passed around. Keep up the good work. Best wishes.
David Gould, Lot 64 Crystal Waters, MS 16, Maleny, Qld, 4552.

In the previous issue of Earth Garden Chris and Rhonda Martin warned of problems they have experienced after four years of using Century PG613 batteries with their solar home energy system. Their comments have generated great interest among readers and below are comments from two battery manufacturers regarding the problem. Also, in EG 61, Peter Pedals discussed the suitability of Sab Nife Sunica NiCad batteries, which are available from the Rainbow Power Company and other suppliers.

Dear Camille and Alan,

We read with interest and concern the article on batteries by Chris and Rhonda Martin in EG 63, in the *ENERGY PULSE* segment. It brings to light the critical role played by batteries in solar systems, the right choice of battery and accurate 'sizing' of the solar system. Many solar retailers have fallen into the trap of offering low cost batteries to buyers to keep the overall system cost down.

The savings are simply not worth the hassles. With some battery manufacturers offering only three months warranty on particular batteries used for solar systems, inference must be drawn as to their suitability for this application. If buyers opt for cheaper batteries then they must accept the associated risks. The life span of even these batteries can be extended if regular maintenance is practised, the batteries are sized correctly (they have ample capacity to support the load) and the users don't discharge them below 50 percent of storage capacity.

Chris and Rhonda's four year life from the Century PG613 batteries would be considered excellent from this type of battery in a solar system. But readers should not be lulled into a false sense of security. There are numerous cheap and supposed 'deep-cycle' batteries on the market which have been known to fail terminally in 6 to 12 months, usually just after the warranty expires. These are not isolated cases, but unfortunately all too common.

So is there an answer? Yes there is, but like everything else, you get what you pay for. One answer is PVSTOR batteries. In 1979 BP Solar (UK) designed a battery exclusively for use in solar systems. At last count, approximately 30,000 have been sold around the world, with no reported failures when suitably installed. They offer a full five year warranty replacement when used with an approved regulator and have an anticipated life span of eight to ten years.

They have a large electrolyte (acid) reservoir and typical replenishment is only once a year. A see-through casing allows instant visual check of the level. There are six volt and two volt versions with Ampere hour capacities from 207 to 1101. We think they provide the reliable, cost-effective answer to users of solar electricity.

Each battery system comes with hydrometer, thermometer, terminal spray, connectors, links and an installation/maintenance manual.

Battery prices in reality reflect the quality of the product. In the solar market many batteries have been tried and found wanting. It makes good sense to invest in a proven product that won't let you down and will give many years of trouble free solar service. We do it with solar panels, so why not with solar batteries?

BP Solar's PVSTOR batteries are used by Telecom, Australian National Rail, Santos and Northern Territory Gas to name just a few of the major

consumers. But more than that, they are used by hundreds of rural dwellers throughout Australia to provide solar storage to the ever increasing number of alternative energy users, just like Chris and Rhonda. Yours faithfully,
Des Meehan, Manager, National Sales Group, BP Solar Australia.

Dear Camille and Alan,

We note with interest your article in EG 63 relating to Chris and Rhonda Martin's experience with our PG 613 batteries. It is noteworthy that Chris and Rhonda have achieved a four to five year service life with these batteries, which demonstrate that under a controlled operating situation one can extract the optimum economy from these batteries. From our experience this is not an isolated case depending on the ambient temperature and the duty cycle. An average life span of five to six years is not uncommon.

In 1982 due to the increased loading demand by remote power applications, and in some cases the unavoidable prevailing high temperatures, we recognised that these conditions would accelerate the corrosion and hence shorten the lifespan of the PG range. We have since redesigned a new range of special batteries for operations under elevated temperatures and repeated cycling conditions for the remote power applications. This is now known as the solar sun DR SS range of deep cycle batteries. The SS batteries are constructed with thick antimonal plates with 0.8 mm glass matt separators to enhance the life of the positive active materials. We have also increased the size of the conductors where possible to further increase the life span of this battery, additionally we have retained the original concept of electrolyte level during operation to allow for venting. A specially designed microporous ceramic vent plug is incorporated to prevent acid spraying and eliminate incidents of battery explosions.

To ensure the correct maintenance of this battery during operations a standard maintenance kit consisting of a hydrometer, thermometer and measuring jug with funnel together with battery care and maintenance log book is provided. The standard range of the SS batteries consists of BV-100 AH through to 2V-500 AH, which are available ex stock. Larger sizes up to 2V-1500 AH can be supplied quickly. We believe with this extensive range we will be able to service all remote power application requirements.

Since 1982 we have installed some 5000 units in various remote areas such as the Northern Territory RAD installations as well as NSW Rail Authority, and large petro chemical complexes. Selecting the correct battery for the intended operating conditions is essential to ensure the maximum return on your investment. Yours faithfully,
Bill Dainton, Century Yasa Batteries Pty Ltd, Sydney, NSW.

Home education networks

Dear Friends,

We have successfully taught our children at home from before birth to university level. We are putting all of that experience in a book and making kits and correspondence courses so as to encourage other families to enjoy this life-enhancing experience. We would like to hear from anyone, or any organisation, with experience or ideas in this area so that we can share with you, learn from you, and provide mutual support and encouragement. In fact, if you have any interest at all in the education of children we would like to hear from you. Love and Peace,
John & Camille Peacock, The Tasmanian Home Education Movement, 43 Sharland Avenue, New Norfolk, Tasmania, 7140.

There are several articles on 'wholegrain' education in this issue of Earth Garden. —Camille.

Flower embedding and paper recycling

Dear Alan and Camille,

I'm faced with two problems and I have searched through your back issues without success — of course my impatience may have contributed to my overlooking information — so finally I have decided to write.

Problem one, I want to encase small flowers in a small block of resin but what is the most economical type of resin? How does one form the resin into a cube? The cube is possibly 3 cm on all sides so what is used to hold the resin till it sets? Problem two, I want to recycle paper as a possible backyard or small industry. What is the process and how is it done? Best of luck to your magazine. Yours,
Ron Treagust, 27 Arkaba St, Taperoo, Adelaide, SA 5017.

Dear Ron,

On problem one we have an 'expert' tucked away in our family. Camille's mother, Gaynor, is a laboratory technician specialising in biology in a high school in Tasmania. She is also a taxidermist (she has a licence to collect native 'road kills' and Camille has many a ghastly story to relate about going to the freezer for ice cream when she was a girl) and does a wonderful job of encasing insect specimens in resin. I think we may be able to twist her arm into writing something about the subject when she is a little less busy. At the moment she and Camille are flat out trying to stop the proposed billion dollar chemical pulp mill from being built near Devonport.

On problem two we are in the same boat. We would love to hear of a method of recycling paper on a scale which would encourage whole communities to recycle their waste paper, and we'd like to hear from any readers who know of such methods either in Australia or overseas.

—Alan.

Economising with chicken bones!

Dear Readers,

Stretch the family food dollar. Enquire at your local fresh chicken shop for chicken bones. I get a large bag of bones with lots of meat on them for 65 cents. I pressure cook the bones and one large onion (just covered with water) to which is added 1 tablespoon of cider vinegar (which draws the calcium from the bones into the stock). Cook until the meat comes off the bones (20 minutes approximately). Strain the stock and set aside to let the fat set. When cold remove fat (this can be used in pastry, dumplings or croutons). Remove chicken meat from bones and set aside (it can be mixed with cooked potato and mayonnaise for salads or sandwiches, used in a lemon sauce with stir fry vegetables or white sauce with steamed vegetables). Also in sweet & sour sauce with rice, with parsley and pasta, in a pie with potato crust of scone topping.

Or you can return the chopped chicken meat to the stock and add any soup vegetables, barley or rice, or make a cream of chicken soup with evaporated or powdered milk. Stale bread cut into cubes and fried in the chicken fat helps to satisfy even growing children when served hot and crisp on thickened soup. The bones are buried in a trench ready for an asparagus bed. The trimmings from soup vegetables also go in for plenty of humus and feed the worms. Nothing is wasted.

Iris Underhill, Edwardstown, S A.

Calling Townsville organic gardeners

Dear Earth Garden,

First up, congratulations for an excellent magazine. It's invaluable as a source of ideas and inspiration. Townsville, being in the middle of the dry tropics, with its high temperatures, scarce patchy rain, and infamously poor soils, offers many points to ponder for the backyard organic gardener. Which brings me to my request. Are there any organic farmers and/or people experimenting with permaculture within a 100 km or so radius of Townsville who wouldn't mind a hand on weekends in exchange for being pumped for information and pointers? We are particularly interested in organically growing subtropical and tropical fruit and nut trees. We are also interested in finding paid work in this field, so again, are open to all offers. Thank you. Best wishes,

Paul & Juliette Devine, 4 Ralston St, West End, Townsville, Qld 4810.

Tasmanian mudbrick opportunity

Dear Earth Gardeners,

About 12 months ago we purchased 20 acres of land at Wyena in north east Tasmania. We have erected a large shed in which we are living, established a garden, orchard and have two milking cows, but this summer our preoccupation is going to be building our mudbrick home. The building has been designed by an architect/friend, is loadbearing and we have made 900 bricks (last autumn). The design allows us to build the house in stages and through philosophy and necessity we plan to include some secondhand materials and keep the cost as low as possible. Phil has learnt about building through many and varied job experiences and his own research. He particularly values thoughtfulness and thoroughness in the process.

We are wondering if there is anyone out there 'mad' enough to want to help and gain experience and ideas. We have a large caravan available and would welcome interested people to stay during December to March.

A bit about us: we practise yoga and live quite a healthy lifestyle but are not fanatical in any way. We are open-minded, compromising easygoing and enjoy sharing ideas and experiences. We have one child, Tara aged two, and would welcome other children.

If anybody is interested and would like more details please drop us a line or phone (003) 956153. Regards,

Phil and Kristina Hesketh, c/- Post Office, Lebrina, Tasmania, 7254.

The cat debate

We have received numerous comments from readers about a letter in Earth People Write of EG 62 about cats. Last issue, due to space limitations because of our Aboriginal Australia theme, we were unable to print readers' responses and, because of an overdose of midnight oil, I forgot to mention that we were holding over the comments printed below.

—Alan.

Dear Earth Garden,

I was saddened to read that someone should write a whole column in EG 62 whipping up a hatred of cats and devote less than two lines to attacking the real culprits — humans.

Earlier in this century great numbers of cats were literally dumped in the bush to cope with the plague of rabbits. Unfortunately, the cats didn't get packed lunches. What does any lifeform do in such a situation?

The cat, like the rabbit, is true to its instincts. Human owners of cats, too mean to have their pets desexed and too lazy to lock their cats up at night, are the real culprits. The blame for any damage done to the environment must be placed squarely on human shoulders. The affection and companionship of cats has benefitted human beings since prehistoric times. I hope this will continue as long as we can desist from destroying our beautiful planet.

For the ultimate destroyer of our planet is us. No cat pollutes the air, tests nuclear weapons, poisons the soil, creates deserts from fertile country or wipes countless species of wildlife from the Earth by so destroying their habitats.

It is sometimes easier to blame the victims rather than the creators. For feral cats, rabbits, pigs goats and donkeys are victims of lack of human care for the precious environment.

Julyanna Johnston, Taree, NSW.

Dear Alan and Camille,

Just a hurried note long postponed. What enquiries have shown that Rodale Press have gone out of business (page 5 of EG 62)? As of shortly before I left North America (less than eight months ago), Rodale Press seemed to be thriving and expanding. Perhaps they had an Australian branch which they have closed? Frankly, I would be astonished if a letter to Rodale Press, Emmaus, Pennsylvania, USA, failed to evoke a response from a vigorous publishing house. To the best of my knowledge, they are still publishing *Organic Gardening* magazine and a host of books on related subjects.

Feeling somewhat sheepish for not having said the same things first,

I'd like to commend Jill Redwood (p 5 & 6 of EG 62) for her remarks about the destructiveness of the feline species in Australia. Also, I'd like to agree with her in patting Earth Garden on the back for increasing your focus on broader environmental issues. On the cat issue, I want to stress that I am not a cat-hater, and that I number many cats among my non-human friends. Nevertheless, there are far too many of them, even in North America where the wildlife evolved to cope with them there are too many cats, but in Australia they are an unmitigated environmental disaster. All the best,
Bob Jones, Ouse, Tasmania.

Dear Bob,

We received misleading information from an Australian book publisher. You are correct: the American address of Rodale Press is 33 East Minor St, Emmaus, PA, USA.

—Camille.

Dear Camille and Alan,

Thank you for your practical and informative magazine, it has provided information and insight on a wide range of activities of interest to a family considering a city-country changeover.

With 15 years experience in handling animal welfare problems, and as a concerned conservationist and lover of all animals, I felt I must write and comment on a number of points raised about cats in your August/September issue. Firstly, I have five desexed cats, none of whom have been allowed to have a litter. No responsible pet owner would want to add to the enormous numbers of unwanted cats (and dogs) which overflow from animal shelters, pounds and petshops throughout Australia. Who has calculated that the average domestic cat kills one animal daily? I cannot remember the last time any of my cats brought any creature home to their lair. Two of them, to my knowledge, have never caught anything. This is due to several factors: desexing — which greatly reduces 'wandering', keeping them in during the 'best' hunting times (between dusk and dawn), and a collar/bell and tag should be worn by all cats who will tolerate a collar. Only a collar with an elastic insert should be used for the cat's safety.

Cat (and dog lovers) are frequently lovers of animals in general, and support conservation and protection of our native animals and habitats, as I do; but we forget that most damage to our wildlife is caused by people, both directly and indirectly.

Elimination of cats from 'fringe' or buffer zones will have a negligible effect on the overall problem and do nothing towards the longer term goals of community education. Many animals are brought from inner areas and dumped in or near these bush areas. It is these animals which live from the bush which are the cause of greatest destruction. To take the simplistic approach of limiting pet ownership in a fringe area or elsewhere is an infringement on the rights of responsible owners, as well as an ineffective solution to the problem.

Let us educate the irresponsible owners (after 15 years work in animal welfare it is my experience that country people are those least likely to have animals desexed). Also, let us not get out of proportion the damage caused by feral animals. What about those thousands of birds and animals killed on our highways and left for dead by drivers who often don't even bother to stop and check? What about pesticides, habitat destruction, etc? Human beings are by far the most serious threat with which our native animals have to contend. Thanks for your letter forum,
Maxie-Lou Hatton.

Dear Earth Gardeners,

With all the talk about being environmentally aware, I thought I should share a few things about my life.

I live a simple, basic life in the Australian bush. So simple, that I do not have a car, those noisy, smelly things that gobble up vast non-renewable resources, both in their running and manufacture and destroy billions of acres of wildlife habitation for highways, parking lots, factories, and that crowning glory, the car wrecker's yard. I like to live off the land, completely if I have to, a sort of hunting and gathering lifestyle; however, I do succumb to the convenience of commercially available food, supporting all that entails — again, billions of acres of land cleared for meat and crop production and all the pollution of that industry, not to mention the horrors of the abattoirs. My accommodation is simple — shelter from the cold, heat, and rain. I don't need an energy and resource consuming multi-roomed house, which cuts such a tremendous scar in the environment and demands such an enormous polluting and wasteful mining, logging and manufacturing industry.

My bodily wastes are carefully dealt with, not fouling the earth and water and not using valuable water supplies. In fact, it eventually nourishes the Earth. My spare time is spent in relaxation and enjoyment of the sun and sights around me; I do not read newspapers or use other paper products, the frivolous and callous degradation of once stately trees.

These are only a few things I could say about my simple life. You see, I'm a cat. I live out here with my humans. Since moving here, the devastating effect they have had on this environment makes me think I shouldn't replace them when they "finally peg out". But, I have a warm feeling for my humans; I can't imagine enjoying life as much without them. So I think I'll get another when they go. After all, they've been around for over 100,000 years: they must fit in somewhere.
Annie Relke, Wyee, NSW.

Dear Camille and Alan,

I am a subscriber of EG, and I derive much pleasure from not only the information, but the atmosphere of friendliness and 'brotherhood' which permeates your publication. It was with much distaste, however, that I read the litany against cats urging us to "tread more gently on the Earth". I would urge the writer to tread quite fiercely on her prejudices to consider a few facts without showerings of generalisations.

I too, live in a rural area and I

agree that we humans should take more responsibility for our domestic animals — of *all* kinds. Cats who are dumped in the bush seldom last long. The food they do catch is not nourishing and they quickly become diseased and tick and worm-ridden, and die before their lifespan is finished. Breeding falls off as a result of malnourishment and few kittens survive beyond the nipple — if the mother is able to provide milk at all. The stories of 'giant' feral cats are just that — stories. Large feral cats are no bigger than those domestic cats that are considered to be large cats, and the ones I have seen are big and hardened certainly, but are sometimes pur-blind, sometimes damaged and scarred, always tick-ridden and always diseased — not merely carriers of disease, but dying of disease. Kittens dumped in the bush after an unwanted birth just don't survive.

Cats who do manage to survive on 'bush tucker' certainly do heaps of damage to wildlife, but have a long way to go to beat the record of humans who have an unbeatable record of 'extinctionism' by such methods as destruction of habitat, herbicides, fungicides, pollution of air and water, trapping and shooting — *ad nauseam.*

Many of us have this "great affection for non-human animals" but I wonder if the writer, as I, makes herself available to care for injured/homeless animals and birds — native or otherwise. Anyone who does would know that these injuries are always the result of a human endeavour. The wild birds around our area are more at risk from human trappers for illegal overseas trade than from cats. Our Eastern Rosellas, Rainbow Lorikeets, Pink-Breasted Galahs, King Parrots, etc, are all surviving because of local vigilance against such trapping. The Currawongs, Magpies and Noisy Miners have the local cats bluffed — they are all very territorial birds, particularly at nesting time — and dive-bomb any cat in 'their' area, and also relish the game of decoying a cat so a mate raids the cat's food.

Let us instead take issue with the human political systems which allow human effluent to be so untreated that the carapaces of lobsters and crabs in the waters off the East coast of North America are rotting and ulcerated and the fish are diseased and foul.

Of course cats should be spayed, belled and indoors at night, as much for their own comfort and protection as for the wildlife they may catch. Wild birds and animals are a joy — and so are cats and other domestic creatures. All should be regarded as creatures of this planet and given the love and concern that is the right of every creature — human or otherwise — to ensure their comfort, good life and survival. This concern should certainly not include never again owning another cat — this stance, to be consistent should also include getting rid of cattle, goats and sheep as these creatures wreck native watering holes and the running of them necessitates land-clearing which wrecks native habitats.

As well, the patronising comments about "rosy idealism of vegie gardens and house cows" being both apathetic and escapist is offensive, as is her assumption that people with such a lifestyle have a "narrowed" view and avoid environmental and political issues. People live as they are able, and while I have met people such as she describes, they are not confined to the vegie garden/house cow ethos, but erupt like pimples all over our society — and in all walks of life. They often have in common self-satisfaction and the misguided belief that they are always right. I commend for attention the letter in the same issue (EG 62) from Armin Ptak. May God keep him and comfort him, and may his message of universality have some impact on others.

Patricia Brennan, Callala Bay, via Nowra, New South Wales.

Of cats and quolls

When we first moved to our farm nearly ten years ago, we replaced people who had kept a large dog. They had one child still at home in senior high school. No wallabies came anywhere near the house, nor echidnas. Near the house lived tree-roosting birds, but no ground-dwelling birds.

Our desexed female cat loved the farm. We roughly mapped out her territory — she roams over the six acres closest to the house. Beyond that she will only go if accompanying us.

Our cat Tip-on does kill — which is the reason we are able to keep a vegie garden. Visitors ask us, "How do you keep your pumpkins?" (or tomatoes, or zucchini, or peas or ...) "The possums/rats/bandicoots get all ours!" We reply that Tip-on's favourite hunting ground is our garden area.

When Tip-on kills anything, she is very proud and can't resist showing us. If the corpse is a rat or mouse, we praise her. It it is anything else we don't. Nor do we punish her as it is her natural instinct to hunt. She makes a particular miaow when she has a corpse to show us, and keeps up her noise for a while, so that even if we're asleep we usually hear it. (We can't differentiate between a marsupial rat or mouse and a European one — but neither can a trap). On average throughout the year she would kill once every three days.

Sometimes, owing to population pressure in the surrounding bush, large numbers of a particular species move in and the overconfident or careless ones fall prey to Tip-on. Some species, for example quail, cannot survive in the centre of her territory at all because our house is the centre of Tip-on's territory. The further one moves from the house the more plentiful are the quail. Often they can be found within 30 metres of our house in long grass. Of course the short grass nearer the house leaves them too exposed to hawks and Tip-on.

During the ten years we have been here with Tip-on, the native animals have increased, not decreased. Even the quail, which are ground-dwelling birds and so typical prey for cats, are more numerous than when we first arrived. This is partly our doing; we leave patches of long grass to provide shelter.

Quails are a delicacy that Tip-on cannot resist. Neither can quolls, the marsupial cats that reside in this area. A quoll is a beautiful, very fierce predator. It is the size of a cat, and is an extremely efficient hunter. A quoll has no trouble attacking and killing a large rooster, as we know to our cost. A cat would not as a rule attempt to attack a full-size rooster. So it seems likely that a quoll kills larger native prey than a cat does, as well as the smaller birds and marsupials common to both.

A pet cat does not need to rely on killing to obtain its food, though it enjoys varying its diet in this way. A quoll needs to kill *all* its food, and so causes more destruction to native wildlife. However as this destruction occurs away from habitation it is not observed.

Feral cats cause as much destruction as quolls, because they also depend on their kill for their total food supply. Feral cats also put pressure on the native quolls as they are in direct competition except for the quoll's largest prey. Though I would back a quoll in a fight against a cat, the match would not be totally one-sided. An experienced cat might be able to overcome a very young quoll on occasions.

We had a mouse plague this winter in our house. This happens nearly every winter because our house-snakes don't hunt in the cold weather. Our house snakes are volunteers living in the ceiling, walls and under the house. One of them is a carpet snake, another is a yellow-bellied whip snake.

This winter we set traps. One night I heard the trap on the sink snap, heard a few flops, then silence. I went back to sleep. An hour or so later I woke to hear the trap being dragged across the sink. "Has the mouse revived?" I wondered. After listening to the noise a few minutes more I got up and went to the kitchen. Turning on the light I saw the trap up against the small gap between the sink and the wall. The mouse in it was limp and unmoving — obviously dead.

A small furry head appeared in the crack between sink and wall. Fastening its teeth on the dead mouse, it again tried to drag the mouse, still firmly attached to the trap, down the crack. It still wouldn't fit.

I put the trap with mouse in the middle of the sink, stood back a little and kept still. After a minute's wait, the mouse-eating creature came out of the crack and proceeded to drag the trap noisily back to its exit. Without being able to examine the beastie closely, I assumed it was a small rat. Rats, I know, eat mice.

Now I don't approve of rats in our house any more than I do of mice. So I put the dead mouse outside and reset the trap with the still-uneaten pumpkin seed. Then I went back to bed. Before I had time to fall asleep, I heard loud clunks and thrashings about. I got up to see what I had caught. Well, it might like eating mice and pumpkin seeds, but it was no rat. I could look at it closely now it was trapped. Rats don't have a terminal ridge of black fur on the end of their tails, nor are they quite that shade of red-brown. Since it was obviously a native, I took it outside and let it go. It scampered away, apparently unharmed.

When I looked it up in my *Marsupials of Australia* book next morning, there was only one beastie that fitted. The appearance matched, and so did the diet. The Crest-Tailed Marsupial Mouse enjoys eating, among other things, small rodents. My book stated that it was scarce, and the habitat shown on the map did not include our area. But then, according to one book I've read the Tiger Cat or Tiger Quoll (*Dasyurops maculatus*) also does not inhabit our area. The Tiger Quoll can be identified by its spotted tail; the Eastern Quoll only has spots on its body. I have seen an unmistakable Tiger Quoll in torchlight, so I know they *do* inhabit our area. Therefore I concluded that my furry friend was indeed a Crest-Tailed Marsupial Mouse.

Habitat destruction is the worst killer of wildlife. It is worse than the introduced predators, shooters and poisoning by farmers combined, for without habitat a species has no chance whatsoever. Without its habitat it has no food or shelter and will become extinct. A marsupial with plenty of food and shelter may be killed by a predator, whether native or introduced. Its sister may be more alert and survive.

Introduced predators such as cats, foxes and dogs hunting in packs have an advantage for a while in a new area. This is because native animals are not programmed to be aware of them specifically, but have to learn. They do learn, those that survive.

In principle I partially agree with those who say cats don't belong on farms. It is a point of conscience and practicality that I have spent hours thinking about. I believe in caring for planet Earth. I also believe in balance. If Tip-on didn't protect our garden, we would have no garden — the possums, rats and mice and bandicoots would get it. This would mean buying the foods we now grow. In turn this would mean going into town more often than we do at present, to buy the fresh vegetables we now pick from our garden. As we live 30 kilometres from the nearest town, these extra trips would result in more fuel burning, and so more pollution, than is the case at present. We would also be supporting chemical agriculture, as very little organic produce is available in our town.

Everyone must find their own balance, make their own contributions towards caring for Mother Earth. Some do it by not keeping cats or dogs. Others do it by minimising their travel in fuel-burning vehicles. Yet others produce their own organic food and so reduce the demand for chemically-produced food. Some cut down or give up meat, because meat takes more energy and pollutants to produce than vegetarian food. Some choose not to have children, because each human uses resources which caused pollution in their making, as well as human population pressure destroying the few remaining wild areas. These are just a few examples of the many ways people try to help our planet.

If you believe very strongly in one particular way of caring for Mother Earth, such as not keeping a dog or cat, spread the word by all means — tell people the reasons for your belief. But *do* be careful not to develop a "holier than thou" attitude. You don't have the right to lay a heavy guilt trip on another; the person you are condemning may be working for the environment in ways you are not aware of. Perhaps they don't use things that you are unable to give up, such as mains electricity which is mostly manufactured in highly polluting power stations. The little cat or dog they keep as a well-loved, well-restrained pet may be very important to their psychological well-being. Or, the fuel they burn to visit a friend may enable human contact otherwise not possible.

Our Western society does not make it possible to live a totally non-polluting life. If you buy anything from a shop, you are encouraging polluters. Firstly because goods are packaged, and bags and packages are made in factories. Secondly nearly all goods cause pollution in their manufacture and transport. However, this is slowly changing, as some people are beginning to find less polluting or non polluting ways of achieving their needs.

On day, perhaps a hundred years from now, it will be possible to enjoy life in a non polluting way. Cars will be solar powered, toilet paper will be made from wood waste (the sawdust that is now burned), trees will only be felled where they have been grown for the purpose, and never clear-felled. War will be unknown and human ingenuity used to benefit all creatures.

Until then, let us try to be understanding of others, and change their ways not by condemnation but by love.

Marja Fitzgerald, Mongogarie, New South Wales.

Catching that clearing sale fever: there's nothing like a bargain

by Chris and Rhonda Martin

Coonabarabran, New South Wales.

SALE-OH Sale-oh! The cry goes up, the adrenalin surges and the heart pumps faster. The number one rule for buying at clearing sales is to know the value of the goods you want. Check newspapers such as *The Land* or *The Weekly Times* for current prices. Over the past 14 years, we have seen people, through lack of knowledge, pay new prices or more on secondhand items.

The best sales are usually mid-week or deceased estate sales. Mid-week sales mean that it's more difficult for the regular weekly wage earner to get to them and there isn't as much money around so things can be cheaper. Deceased estate sales generally have a superior range of items available because everything has to go, whereas with ordinary sales the owner may only be moving to a different property, reducing excess stock or may have a reserve price on items.

The problem with many clearing sale advertisements is that items that EG readers are interested in are usually listed as 'sundries to numerous to mention'. Snapping up anything that even vaguely resembles an antique just doesn't happen anymore. There is usually either a reasonable amount of knowledge shown by prospective purchasers or an antique dealer may arrange to have someone else do the bidding for them.

Fencing material and relatively new corrugated iron are just not worth buying because they repeatedly go for near on retail price. You may as well buy new iron and put the new holes where you want them. Part rolls of fencing material are often very bad buys because it is difficult to gauge how much is left on them. By the time they've been carted home it would have been cheaper to purchase new rolls from the local dealer.

With the recent ups and downs in the Australian dollar imported items can fetch more than their new price of only a few years ago. This is particularly true of such items as power tools, engine-driven pumps and other small plant — especially of Japanese origin.

A few tips for when you're on site

1. There are no guarantees at sales. "What you see is what you get", or often "What you don't see is what you get". You may be buying someone else's trouble. Be very wary of freshly painted items because a good coat of paint can often hide a bad fault.

2. Check the items are in working order *yourself.* On small engines check for coking up of the cylinder head, check oil, spark plug and dust filter. These can give the prospective purchaser a pretty good idea of how the current owner has treated them and how much work or use they have had.

Take a good look at the engine make and model. There are at least three models of Briggs & Stratton around, ranging from aluminium head, through cast iron sleeves to the new I/C series. Honda also seems to change models quite regularly, almost as often as some car manufacturers. Some makes are harder to get parts for, while Briggs & Stratton and Honda are the most popular of the petrol driven engines. This doesn't mean that other brands are no good but there must be a reason why these two are so popular.

3. Make sure any major item is not subject to a lease or credit agreement. If unsure don't buy or you could do your money cold because the company can repossess them.
4. Because most auctions work on a numbers system make sure you remove small items after you have successfully won a bid. You are legally liable for them even if someone else removes them in error.
5. Get there early if you can to test out things that may be of interest. It will also give you an idea of the 'opposition'. The more people interested the dearer the item will be.
6. Beware of box swappers. Check that the thing you want is still there or is the same one you examined before you start bidding. Some unscrupulous villains may hide things under junk in other boxes.
7. You can sometimes ask that an item you want be taken out of a pile. The auctioneer may do this if no one else objects. However you can end up paying more for it because he knows that you are interested.

Bidding

Experience is the best teacher. Regrettably it is more difficult for women when bidding, because many country men are still very sexist and will simply refuse to be out-bid by a woman. A few auctioneers are just as bad with comments like "You're not going to let her out-bid you are you!"

Bidding methods

Each has its advantage and disadvantage.

Blowing out. This means to raise the bid in big jumps. Say the bidding starts at $100 for an item that you have set a limit of $500 on. You can sometimes scare the opposition away by upping the bid from $100 to $400 in one go. This has the disadvantage that you may pay more for the item than the bidding may have reached but it could be still $100 less than the maximum target you set.

Running with the pack. This simply means following the bidding as the price increases. The bidding may start with as many as 10 to 20 bidders and near the end finish up with only two or three still in. Be careful at this stage not to become involved in a 'bidding run'. This is where the auctioneer will deliberately speed up the calling to create a greater degree of excitement and this can induce people to pay silly prices through a sudden rush of blood to the head. Just stay calm and look disinterested until you are ready to bid again.

Late bidding. This means waiting out until almost the end of the bidding and coming in at the last moment to dishearten the opposition. The auctioneers sometimes call this 'new blood'.

Hidden bidding. By prior arrangement a bidder can use a signal such as scratching your nose or tugging an ear. It sounds silly but it still goes on. Country communities are still very close-knit and it's fairly difficult to maintain privacy at auctions. It's awkward bidding against friends at sales and this method is used because some people get unreasonably upset when bidding against neighbours.

If you are not known to the auctioneers you will probably be asked for proof of identity and if bidding on major plant you may require credit clearance before the sale. Unfortunately, this is due to the increasing amount of fraud. Yes, it's even reached the country.

"How much am I bid for this priceless artefact?"

Remember

The three main things to remember are:
1. Know the value of the item.
2. Check its condition before bidding.
3. Pull out of the bidding once you have reached your limit.

After all this time we still occasionally make a mistake — it's part of the clearing sale mystique.

That's what we tell ourselves as consolation anyway! Despite all the above it often boils down to luck and courage.

Happy hunting.

The shingle roof - a natural alternative

by John Archer

Brunswick Heads, New South Wales.

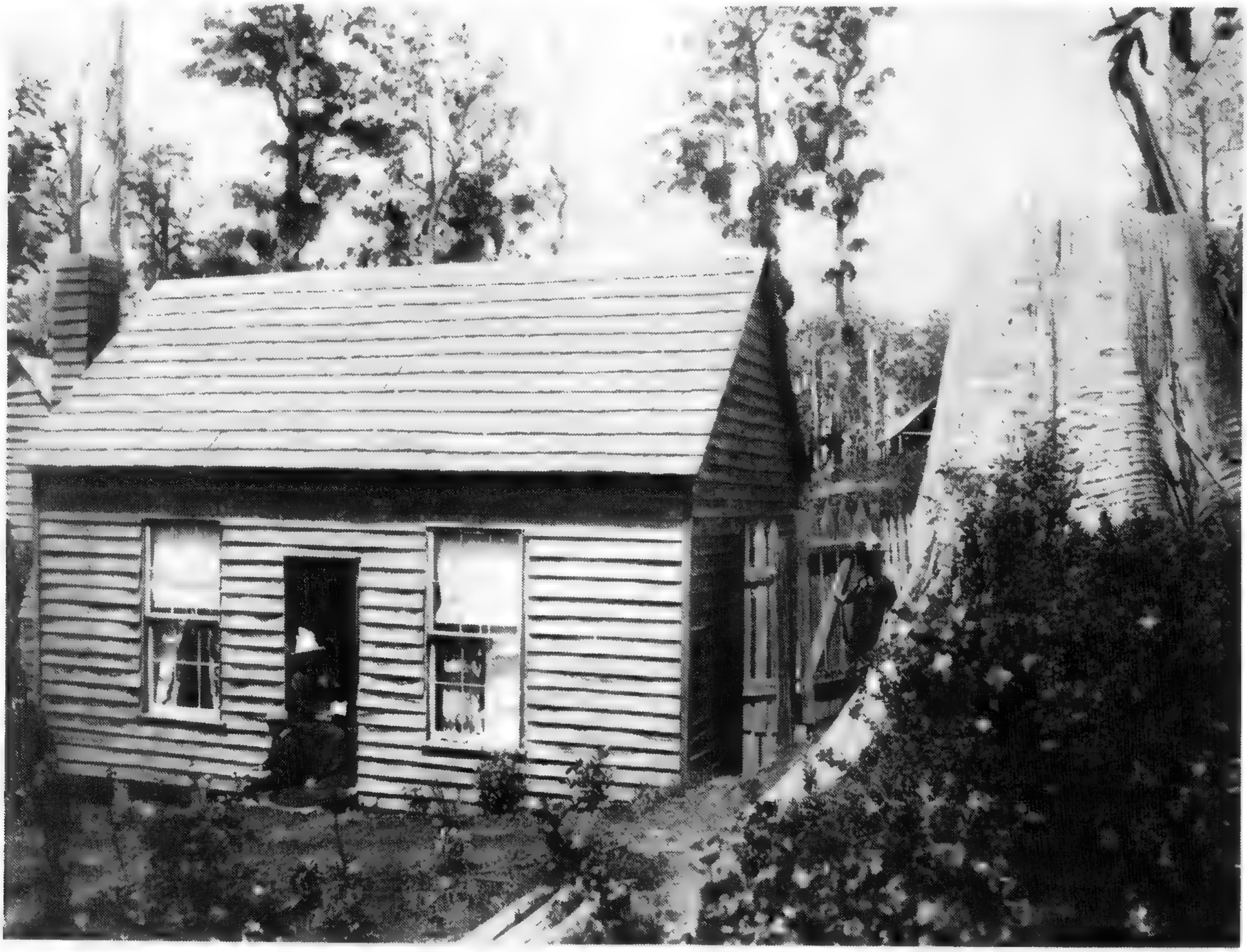
THE Hansen family in Victoria's north Gippsland have an interesting old shed on their property. It's made entirely from handsplit stringybark — the roof, the walls, even the studs and battens. Some walls and the floor are hand split slabs and the whole 90 square metre building was made from one massive tree over 100 years ago. Now that's wise use of natural resources.

Shingles, palings, battens, studs and small dimension framing timber were all split with a knife-type wedge called a froe or paling knife.

Splitting your own shingles

The first consideration is suitable timber. Big straight trees are becoming scarce but they are there. Remember when you take them that trees are a renewable resource and we all have a responsibility to see they are replaced. Plant 10 for every one you take and you'll help pay your debt to the earth.

The best shingles and palings come from mature trees with tight growth rings. The tree should be at least 600 mm in diameter at a point a metre above the ground with no limbs in the first four metres. A sign of good grain is bark that runs straight from the roots to the first fork. Some of the varieties used in Australia are Jarrah (Western Australian), Casuarina Torulosa (New South Wales), Peppermint Gum

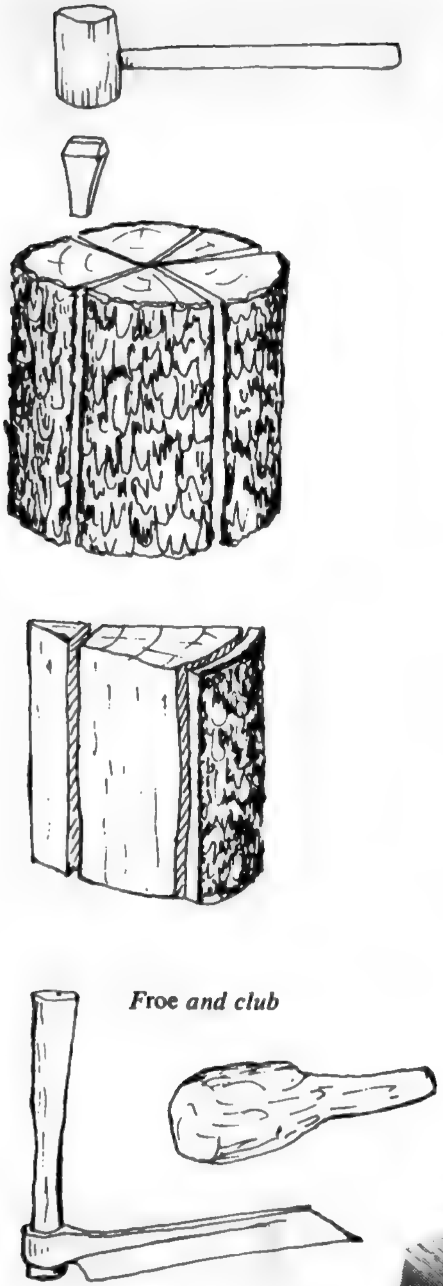


This Gippsland cottage was built of handsplit weatherboards and roofed with shingles. All the material was split from the tree whose stump stands beside the house. The paling fence is also hand split. Photo: Latrobe Library.

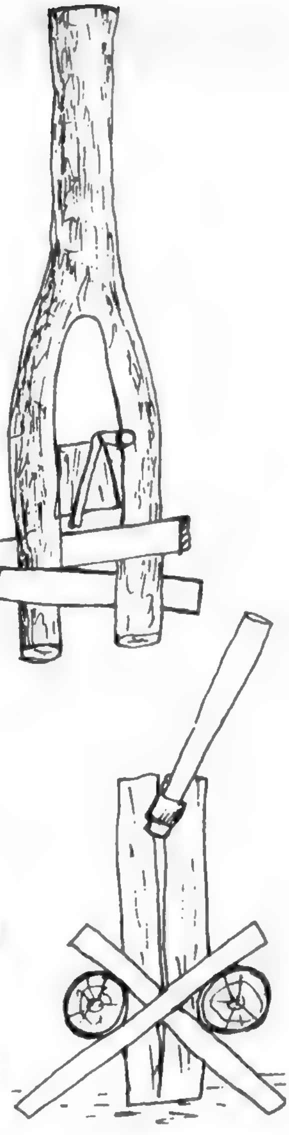
(Tasmania), Brigalow (Queensland), and the Stringybark Messmate and Mountain Ash in Victoria.

One of the most popular timbers for this purpose was the Forest Oak. Not only was it free splitting, durable, and readily available, it had an additional quality — a gum which weatherproofed the shingle and also allowed clean drinking water to be collected from the roof.

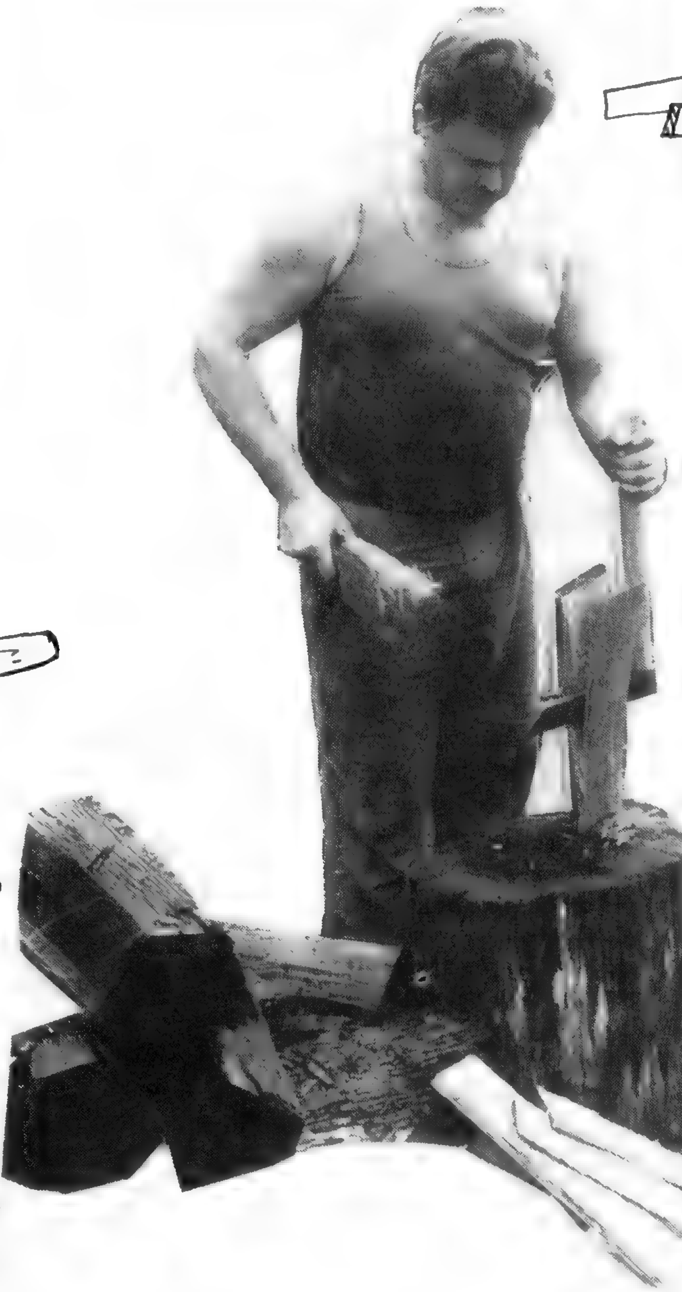
The tree is felled with a chainsaw and cut into bolts of appropriate length (400 to 600 mm). Each bolt is split with a sledge hammer and wedges into halves, then quarters. The quarters



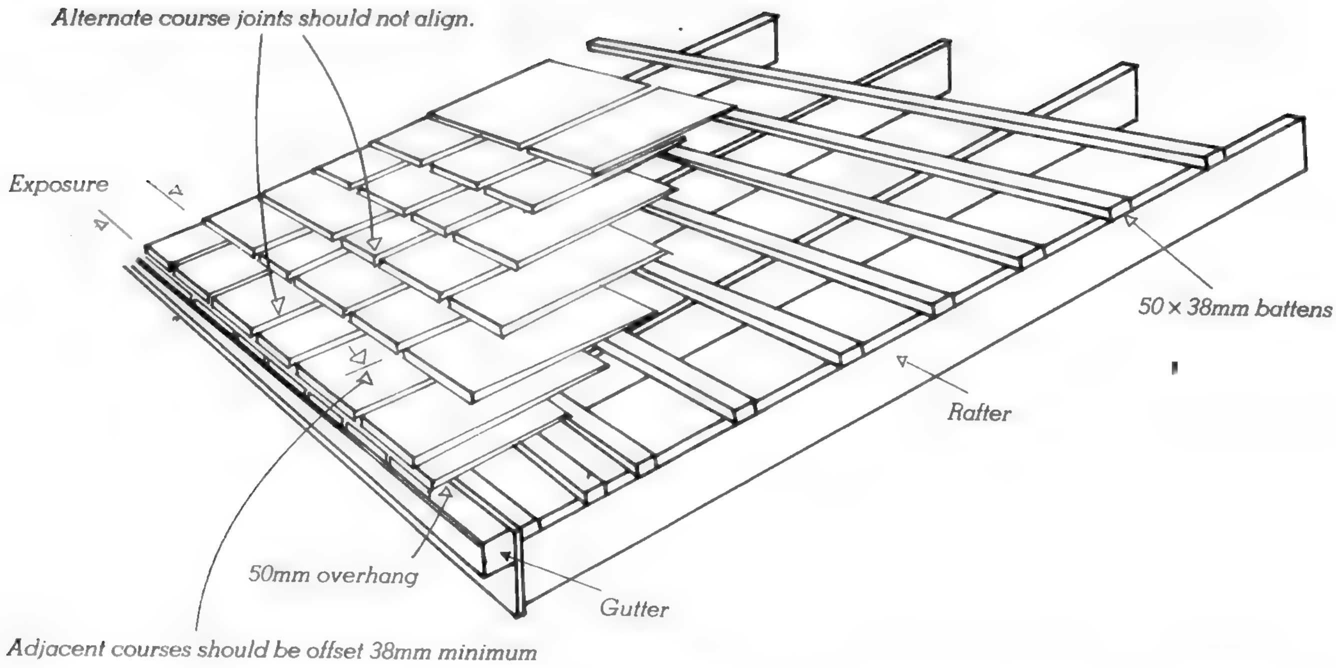
a. Splitting a bolt of wood into billets. b. Trimmimg off sapwood and heartwood. c. A froe and club.



A splitting horse in position.



Right: Stan Ceglinski of Shingles Australia pries a shingle from a billet using a froe. The froe is struck on the protruding edge of the blade with the hardwood club in his right hand.


Alternate course joints should not align.
Exposure
50 x 38mm battens
Rafter
50mm overhang
Gutter
Adjacent courses should be offset 38mm minimum

Applying shingles. If there is no ceiling then layers of sarking can be interleaved between layers of shingles so that it is not seen from beneath.

are split again into halves giving eight sections, each shaped like a slice of pie. The heartwood at the point and also the bark and the sapwood are split off. If the tree is of large diameter, each section can be split with the froe into 150 mm to 200 mm widths.

The froe is a tool with a very long history. Basically it's "L" shaped with a wedge type blade roughly 350 mm long, 50 mm wide and 7 mm thick at the spine with a forged eye of 35 mm diameter. Into this eye is fitted a wooden handle 400 to 700 mm long. The blade is driven into the section of timber with a mallet of wood or preferably a froe club made from a branch of hardwood about 200 mm in diameter and 450 to 600 mm long, shaped down to a handle at one end.

The froe is driven in 50 to 75 mm, the handle is turned to one side to pry the split open, and then the blade is forced further into the open split and turned again, splitting the shingle off. With practice you'll learn that prying in one direction runs the split in and the other runs it out. If your shingles keep running off, turn the block upside down for a while. A splitting horse made from a branch and two pieces of wood will make it easier to lever.

The best shingles are split against the grain or radially. Common practice is to keep halving pieces till you get down to the desired thickness (between 12 and 18 mm) rather than working from one face. This helps to stop running out. If the timber is difficult to work, you may be able to make bastard shingles which are backed off but these are more likely to warp because of the pattern of the growth rings. They are best used for walls.

How many and how long?

To give you some idea of how much work is involved: depending on the timber, I can split between 600 and 800 shingles a day. You can expect to get about 60 shingles from a bolt of timber 600 mm in diameter and 400 mm long, each shingle having an average width of 120 mm. Depending on your roof pitch and eaves width it will take roughly 5000 to 6000 such shingles to roof a 90 sq m house.

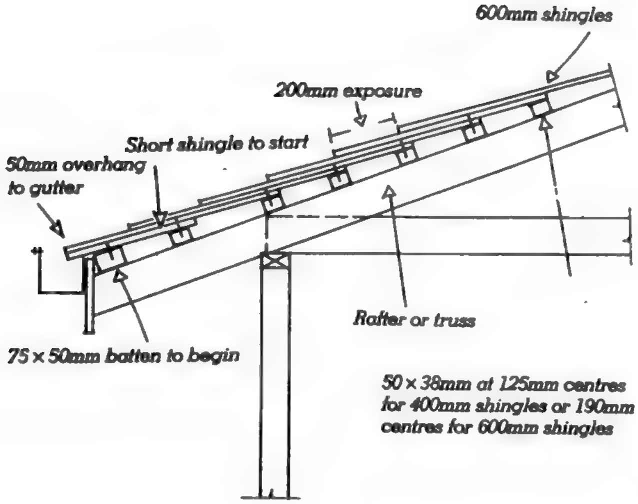
If you find that too daunting a prospect you can now buy hand split Australian Hardwood Shingles from a new company, Shingles Australia*. They also produce sawn shingles for roofing and walling.

To estimate the number of shingles needed to complete the roof, first calculate the average coverage of each shingle and divide by three. This is the actual amount that will be exposed to the weather. Then calculate the area of your roof and divide this by the area of exposure. This will give you a fairly accurate idea. The thing to remember is that a good roof should be three shingles thick. This provides excellent insulation and maximum strength and weatherproofing.

The pitch of the roof is an important factor too. A roof with a pitch of 30° or more will not only last longer but will ensure that it is weatherproof. Where the pitch is less than 30°, sarking (alfoil insulation) is recommended.

Laying the shingles

Once the roof frame is completed the battens can be nailed on. Battens should be spaced so that the distance


600mm shingles
200mm exposure
Short shingle to start
50mm overhang to gutter
75 x 50mm batten to begin
Rafter or truss
50 x 38mm at 125mm centres for 400mm shingles or 190mm centres for 600mm shingles

The bellcast method for laying straight or untapered shingles.

between centres is the same as the exposed portion of the shingle surface.

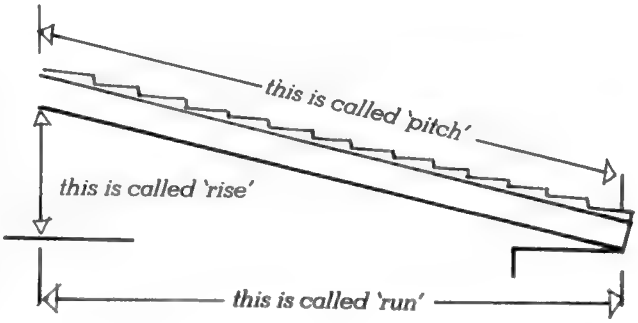
The first course of shingles should be of double thickness and should protrude not less than 50 mm into the gutter. Shingles are best laid green and if so they should be laid as closely together as possible. Each is secured with two 50 x 20 mm hot dipped galvanised nails. In some Australian hardwoods, holes may need to be drilled to prevent splitting. The placing of the nails is important too. Make sure the nails are located so they are covered by at least 40 mm of the next course. The nails should not be hammered right into the wood but merely bedded on the surface of the shingle.

The second layer of shingles in the first course should be nailed over the first layer in such a way that the joints in each course are not less than 40 mm apart. This is the minimum recommended side lap and if possible should be increased. The second course is then laid using 33 1/3 percent exposure. The exposure is measured from the butts of the shingles in the first course. Some people prefer to use a strip of timber as a straight edge against which to lay the shingles, others use a chalk line.

Another important point to remember is that while the joints in succeeding courses should be at least 40 mm apart, care should also be taken to make sure that the joints in alternate courses are not exactly in line or, to put it another way, never have two joints in line if separated by only one course of shingles. The ridge can be made of shingles with their edges bevelled and lapped in the opposite direction to the worst weather or two long boards can be used.

One word of warning. Problems have been reported where shingles have come in close contact with sarking material as might occur when roofing onto a deck or timber ceiling instead of battens (or when sarking is used between course of shingles for additional weatherproofing). The sarking is usually spread over the ceiling and the shingles nailed directly onto the ceiling lining. Ordinary sarking, such as sisalation or Sisalcraft can trap moisture permanently, causing dry rot. If sarking is to be used in contact with shingles it should be a vapour permeable moisture proof type. There are three varieties available in Australia — Pabco No 15 Saturated Felt, AHI Flamestop Fire Retardant Building Paper and Antiblaze 121 Building Paper. Shingle roofs are not only beautiful, they work for you. The cellular composition of wood is such that each centimetre contains millions of tiny air filled cells. This makes shingles a natural barrier to heat and cold with a high degree of thermal insulation. Because shingle roofs are three layers thick, the insulation value is increased proportionately — a comforting thought on cold winter nights.

**An information and price list of sawn and hand split hardwood shingles is available from Shingles Australia, Stokers Siding, New South Wales, 2484, Post Office Box 750, Murwillumbah, 2484. Telephone (066) 79 9150.*



TYPICAL EXPOSURES

Roof Slope	Shingle Length 400mm	600mm
25°-30°	95mm	145mm
30° +	125mm	190mm

Note: Remember that the exposure is also the distance between batten centres.

PITCH: The *pitch* of the roof measured by degrees. The minimum pitch suggested for shingles is 25°.

EXPOSURE: Correct *exposure* is essential. The portion of each shingle left uncovered to the weather is termed *exposure*. Roof *pitch* and length of shingle to be used will determine correct *exposure*.

Sawdust for the garden

by Jose Robinson

Wild Cattle Island, Queensland.

THERE have been many words written condemning the use of sawdust for the garden. When used wisely and sensibly, this versatile waste product can be like manna from heaven for the soil. Sawdust can be thought of as a conditioner for the soil. The main stipulation is that it does not come from a joinery workshop or the like, where treated softwoods are frequently used. Most ordinary sawdust should not contain any toxic properties.

Sawdust has a slight acid reaction until mixed with or composted with organic manures, most of which are alkaline. For my sandy soil, I use sawdust freely to help retain moisture. I compost green sawdust for 14 days only, before topping up my vegie gardens with it. I also use it around fruit trees and shrubs.

For my compost mix I use one part green sawdust, one part fresh seaweed straight from the beach, three parts grass clippings, and the main catalyst is one part poultry manure usually aged only about three weeks.

All this goes into a 54 litre drum set up on a stand. The drum needs to be tightly packed with no air space left. The drum is turned at least once a day (or anytime I pass it). At the end of 14 days, there is a drum full of sweet composted humus ready for immediate transfer to the vegie gardens. Then the whole cycle begins again. I keep this going all year long, and each garden gets its share of medicine in turn. In dry times, I cover the gardens with extra straw as well, so no nourishment can be lost to the elements. I live in a very warm and dry area.

Five laying hens and one rooster supply me with approximately one bucket of manure each week. This is easily collected as I have two large shallow aluminium trays underneath the roosting area. Twice weekly I tip the contents of the trays into a covered bucket which is then set aside for two to three weeks to be ready for the sawdust compost drum.

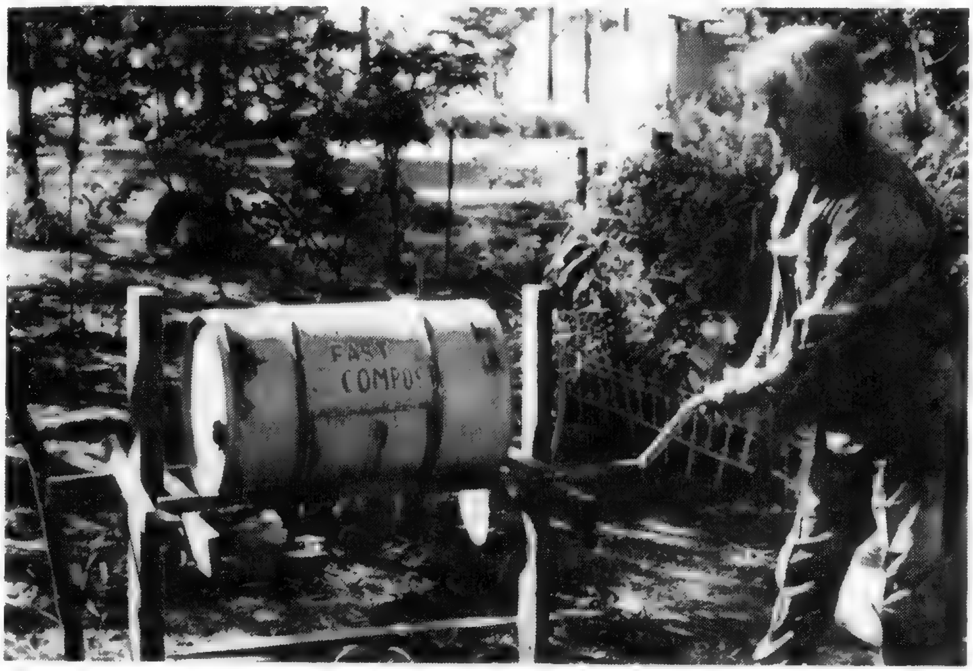
The regular removal of the litter keeps the poultry shed sweet smelling and free of flies. Poultry manure is strong and rich and most suitable for helping to decay the sawdust quickly. Its powerful bacteria readily break down the sturdy cell-walls of woody tissues.

If you were to spread green sawdust thickly onto the garden, some plants may turn yellow and even die from nitrogen starvation. The reason is that the busy soil creatures would be collecting so much nitrogen in their endeavours to decompose the sawdust, that insufficient would be left for the plants' use.

To decompose sawdust on its own to make it suitable for gardens, it should be left for six to twelve months or longer, depending on conditions. It should be kept moist and preferably turned occasionally. The carbon which is trapped in sawdust is beneficial because of its long lasting effect in the soil. The soil organisms release the carbon ever so gradually over a long period. Another plus for sawdust is the fact that it's free of weed seeds and is very lightweight. It adds bulk to sandy soil and breaks up heavy soils. It allows tiny air pockets in the soil and provides easy access for earthworms to penetrate.

My soil conditioner costs me nothing except effort. I spend no money on fertilisers of any kind. I collect the sawdust from a sawmill by taking along my own bags and shovel and loading it myself. I gather the seaweed regularly from the beach in front of my home. Grass clippings we store in large drums where my husband empties the mower catcher. The poultry manure is ever-ready on site.

Although decomposed sawdust is not very high in food value on its own, I find its assistance in my methods invaluable for my garden, nursery and mini orchard.



Jose turning her sawdust compost drum, with her vegie patch in the background.

Volts Times Amps Equals Watts

~ Explaining the basics ~

by Peter Pedals
Nimbin, New South Wales.

A LOT of our learning depends on being able to observe and touch. In the early years of life we do not get thoroughly acquainted with electricity the way we do with material objects because electricity cannot be inspected and dissected. In fact, for most of us it remains a total mystery. Electricity seems quite magical or supernatural when demonstrations show how it seems to be able to pass through a solid object like lead or copper. But if we are interested in living with our own solar electric system we need to at least have a basic understanding of the difference between volts, amps and watts.

Magical it is, and its wonders just go on *ad infinitum*. But don't let any of this mystical stuff deter you from getting some kind of a working grasp of it. We are not going to attempt to unfold the mysteries of the universe in this article but just enable you to be able to deal with the basic principles associated with a solar electric system.

If the sun shines on your solar panel and the panel is properly connected to the battery you should have a current flowing from the panel to the battery. This rate of current flow is measured in amps. When the current is flowing between the charging source and the battery to increase the voltage of the battery, we refer to it as a charging current.

Electrons flowing along the wire

Electrons are an integral part of atoms and molecules and each atom must always have the same number of electrons near it. Only those atoms and molecules known as electric conductors are happy about letting go of one electron in exchange for another and will readily do so. A conductor is a material within which there are 'free' electrons. These electrons will move when a force is exerted upon them. The movement of these free electrons in a conductor (for example copper wire) creates an electric current. Some materials are better conductors than others.

If a free electron from a source of energy is forced into an atom at one end of a conductor, it upsets the balance between electrons and protons of that atom. This forces another free electron from that atom to shift to an adjacent atom, thus upsetting its balance. This shifting or drifting of free electrons towards the other end of the conductor is called electric current flow.

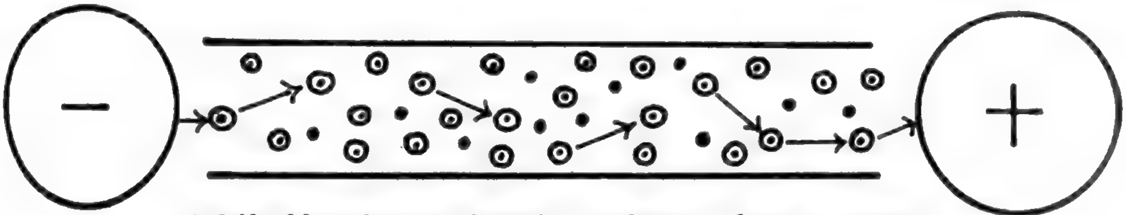
Solar panels

A solar electric panel (photovoltaic panel) will exert a force upon these free electrons in an electric conductor (for example, some copper wire), but only if light falls upon it and the electric circuit is completed (that is, there is nothing to interfere with the current). You could, for example connect a piece of copper wire directly between the positive and negative terminals on the solar panel. As a result of the force exerted upon them each electron just jumps from the outer electron shell of one atom to the next, causing that atom to shed an electron which is then passed on to the next atom and so on. But the other end of the conductor must also be connected to the energy source that is causing the electrons to flow (to complete the circuit). To put this electric current to some use, you could connect an appliance or light bulb to the copper wire and solar panel. The electric current would then pass through the appliance or light bulb as it is pushed around the circuit by the solar panel.

Comparison with water flow

To help our understanding of these fundamentals it makes it easier if we compare the principles of electric current to those of flowing water. If you pump water into a pipe and place a secure plug in the other end of the pipe, the water will cease to flow. Regardless of the amount of pressure you build up, the water will not flow. However, if we construct a unit with a water pump forcing a current of water through a closed system of pipes to run a hydraulic motor, we have made a path or circuit for the flow of water.

A solar panel or electric generator is like a pump. It creates pressure (voltage) which makes electrons move or flow in the wire. If a return path is not available to make a complete circuit (such as when a switch is off — that is, not making contact) the flow is stopped. Regardless of the amount of pressure (voltage) generated, the electrons cannot



A drift of free electrons through a conductor to form a current.

flow. As you may have gathered by now, voltage is the term used for electrical pressure and may be compared with pressure under which water flows through a pipe. Current is the term used for the rate of flow of electricity in a conductor and corresponds to the rate of flow of water in a pipe.

Batteries

When a battery is connected into circuit with a solar panel it does not actually store the electricity (moving electrons) produced by the solar panel but undergoes a chemical change as a result of the electric current passing through it. This chemical change when the battery is connected to an energy source such as a solar panel is referred to as charging. This process can be reversed by connecting the same battery to an appliance or light. When the chemically stored energy in a battery is changed into an electric current to power an appliance or a light, this process is referred to as discharging.

At night when the solar panel is not receiving any sunlight to cause electron flow then the battery must be able to take over this role when you want to use some electricity. So if you turn a light on the battery starts discharging and in so doing pushes the electrons around the circuit and through the light bulb which then uses the electrical energy to manifest light energy. In the accompanying diagrams you can see that when the light switch is turned off, the circuit is broken and hence the electrons cannot flow.

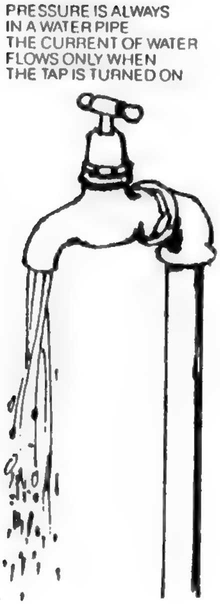
A 12 volt solar panel will actually produce a voltage higher than 15 volts in order to charge a 12 volt battery. If the voltage of the solar panel was not greater than the voltage of the battery, the current would not flow and the battery would not charge.

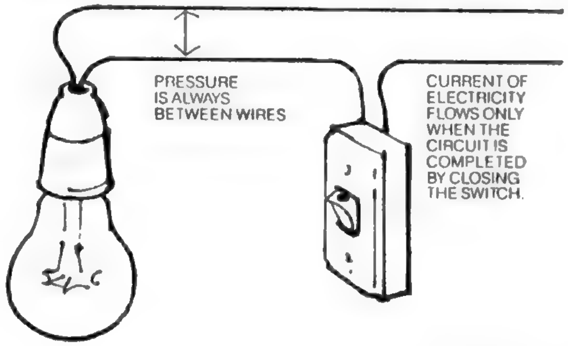
If you imagine a water tank on a hill with a hose coming out of it you may also visualise that the further down the hill you go with the hose, the more water pressure you will get. If you wanted to fill a second tank from the first tank, without the use of pumps or any other way of artificially increasing the pressure, you cannot do so if the second tank is uphill from the first. The further down hill the second tank is, the faster the water will flow into it. In the same way you cannot charge a 12 volt battery with a charging source that does not produce more than 12 volts.

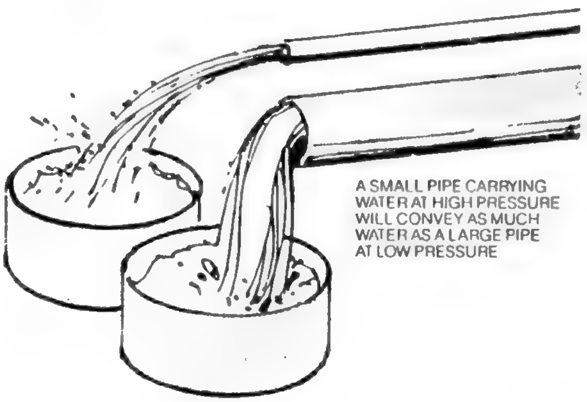
The average 12 volt solar panel has between 32 and 36 cells, each of which produces about 0.5 volts under direct sunlight. The number of cells connected in series determines the combined voltage potential of the cells and of the panel as a whole. The size of the individual cells that make up the solar panel determines the amount of current flow that each panel can produce and the current would flow from the solar panel to the 12 volt battery. It flows at a rate determined by the combination of the voltage difference between the solar panel and the battery and the size of the individual cells in the solar panel. If there is insufficient light to make all the cells in a solar panel produce a voltage greater than the battery voltage, the battery will not be getting any charge, regardless of the size of the individual cells.

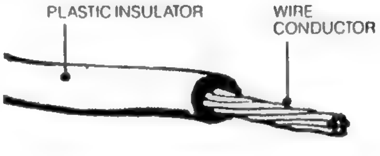
The 12 volt lead-acid battery has six cells in series, each of which produces a voltage of about two volts. Actually, a fully charged cell of lead acid battery not under charge will be about 2.1 volts and hence a 12 volt battery will have a voltage of 12.6 volts.

The sun shining on the solar panel may be equated to rain falling on the shed roof that fills the water tank, where the rate at which the tank fills is dependent on how heavy the rain is, how big the shed roof is in comparison to the water tank, and how good the connections are between the shed roof and the water tank. Similarly, the connections between the


PRESSURE IS ALWAYS IN A WATER PIPE
THE CURRENT OF WATER FLOWS ONLY WHEN THE TAP IS TURNED ON


PRESSURE IS ALWAYS BETWEEN WIRES
CURRENT OF ELECTRICITY FLOWS ONLY WHEN THE CIRCUIT IS COMPLETED BY CLOSING THE SWITCH.


A SMALL PIPE CARRYING WATER AT HIGH PRESSURE WILL CONVEY AS MUCH WATER AS A LARGE PIPE AT LOW PRESSURE



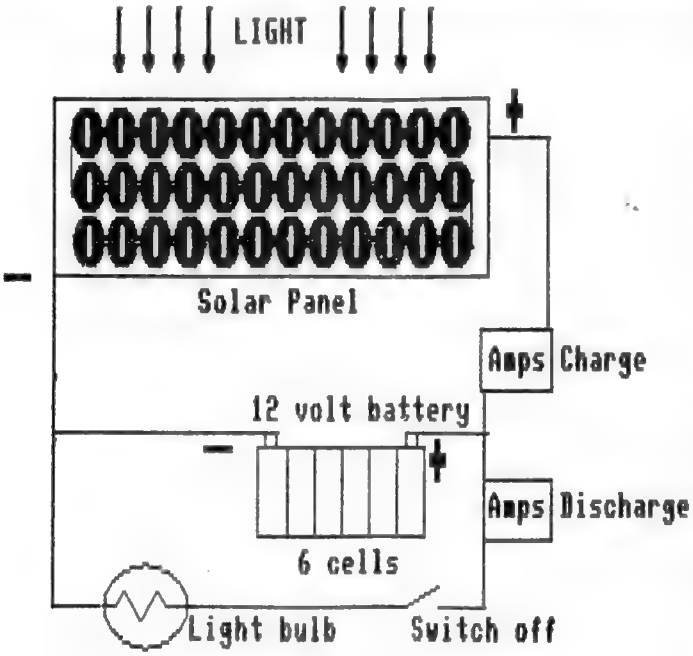
solar panel and the battery and the size of the wire to carry the current are also important. Undersized wire and bad connections can impair the current flow or stop it entirely. A bad connection has the same effect as a resistance.

The flow rate, or amps, is largely determined by the size of the pipe (for water), or cable (for electricity), assuming that there are no other restrictions anywhere that are greater than the pipe or cable. If we go back to the example of filling a second tank downhill from the first and we wish to determine how fast the second tank is being filled, we can do so by knowing two things. Firstly we need to know the pressure, which is a function of the vertical distance between the tanks (minus the resistance of the pipe). Secondly we need to know the diameter of the nozzle as this is the main limiting factor for the flow rate. The rate at which the tank fills is directly proportional to the pressure and is also directly proportional to the diameter of the nozzle. If we call the pressure volts, we call the diameter of the nozzle amps and the rate at which the tank fills we call watts; we can say now that watts equals volts times amps.

To make it easier to understand the significance of this, you can understand that there are two ways of filling the tank faster, you can either increase the pressure (place the second tank further downhill) or increase the size of the nozzle and pipe. If you have no pressure, no matter how large the nozzle is, there will be no flow.

If you fill a battery with a trickle charger charging at the rate of one amp for 100 hours, you can say that you have put 100 amp-hours into the battery. Similarly, if you charged the battery at a rate of 10 amps for 10 hours, you have again put 100 amp-hours into that battery. We have already determined that amps times volts equals watts.

Watts is a rating of power, a combination of volts and amps. With a 12 volt system, the wattage of an appliance is the amps used by the appliance multiplied by 12. With a charging system such as photovoltaic solar panels which are rated in watts, your expected charge rate (in amps) may be as low as watts divided by 15 (instead of 12) because of the voltage differential between charging source and battery and the fact that a fully charged 12 volt battery may be in excess of 14 volts. Watts is a measure of power. Also referred to as volt-amps or VA. It stands to reason that amp-hours times volts would then equal watt-hours. Watt-hours is a rating of work. Battery capacity is usually given in amp-hours.



I have checked a number of small 240 volt battery charges with amp meters fitted and found that these meters are often out by a factor of three fold. Checking the current flow with an accurate amp meter I found that when the charger was registering say 6 amps, my meter would only register about 2 amps. I think that this is a matter that should be brought to the attention of Consumer Affairs Departments as false and misleading product information.

In the next issue of Earth Garden Peter discusses wiring a home for a 12 volt energy system. For more comprehensive information on the basics, and intricacies, of low voltage home electric systems — solar, wind and hydro — ENERGY WORKS!, an Earth Garden book compiled by previous EG editor Keith Smith, remains an excellent starting point. See page 56 for ordering details. Not surprisingly, Peter Pedals is one of the major contributors in ENERGY WORKS!

Energy from Nature

Energy from Nature is the title of a new book compiled by Peter Pedals for the Rainbow Power Company of Nimbin. It is described as "a complete guide to independent energy systems" and is 64 pages crammed with practical information, tips and product information.

The book covers such topics as estimating your needs to calculate what sort of system is appropriate for your home, wiring your home, and areas of neglect and failure. The book also covers the basics of how electricity works, and then delves into lots of useful information about all sorts of products sold by the Rainbow Power Company (including many technical specifications) ranging from batteries light bulbs and meters, to pumps, wind generators and any other appropriate energy product you can think of. This is highly recommended reading for anyone considering installing an independent home energy system or for people who already have one and are interested in the little refinements possible. It's probably also a good present for those who've already decided that an independent system probably isn't worth the hassle — it might just change their mind!

Energy from Nature is an A4 sized book, has many illustrations, and costs only $6 including postage from the Rainbow Power Company, 70 Cullen Street, Nimbin, 2480; telephone (066) 89 1430, fax (066) 89 1109.

Wholesome education

The following few articles present ideas about educating our children. Most parents think carefully about the sort of education their children are going to have and we hope these stories stimulate some discussions. Also, in the Unclassifieds section of this issue there is a message from people interested making contact about home education.

by Claire Powell

Bega, New South Wales.

PACKING the children off every weekday morning to spend the whole day with strangers has never seemed right to us. So when we decided we'd like to have children we also resolved to incorporate their education into our lifestyle.

When I reconsider, as I often do, my own school days I get disturbed by all the valuable time I wasted there. Primary school wasn't so bad. There, at least we were allowed some free expression. Then again I was one of the lucky children, alert enough to what was supposed to be happening in the classroom to be able to take advantage of it. And I did well, by their standards, so the teachers liked me. But I pitied those vacant looking kids, who really didn't know what was going on. They'd been swept away from their homes, their family, their toys and all that was familiar to them in their early tender years and deposited in this strange environment.

I liked it though. Being at home was boring, my parents didn't have the time or the inclination to engage me in any educational pursuits. Even though my father was a teacher himself, I was actually prevented from learning things which were thought to be inappropriate for little girls, while the more conventional components of education were considered best left to the professionals. So when I started school I felt that it had been designed for me.

The rot set in when I graduated to, in those days, Grammar school. Quite suddenly the curriculum was determined by someone who certainly didn't have me in mind. And judging by the response, or lack of it, from almost all of the other children they'd have been better off somewhere else too. Vast quantities of knowledge were taught to us, pumped in religiously by diligent teachers, who knew how important it was that we should pass our exams and be armed with enough of the right bits of paper. And most of us did manage to swallow it down and regurgitate it in the appropriate place on the day.

But it didn't mean much to us. It shocks me now to realise how little I remember. Such a waste. All that information that I couldn't make any use of and meanwhile my natural talents were stymied, denied expression because they didn't fit into the scheme on offer. I had much better things to do than go to school five days a week.

Of course I'm not the only adult around with a tale to tell of how the education system failed them. It's a tall, if not impossible, order to design a system that's going to be right for every child. But if you listen to some of the tales it seems to be wrong for far too many. Yet the children become parents themselves and, even though things are supposed to be better today, they send their own offspring to school knowing that the same injustices are likely to befall them.

Schooling is accepted as compulsory, although as parents in this country and most others, we do have some choice in the matter, in principle, providing we can satisfy the authorities that our children are receiving an adequate education by other means. What exactly makes it adequate is open to interpretation, but the law does not in fact make schooling compulsory.

Children go to school because children go to school. It's a very powerful convention all over the world these days and very few parents even consider not schooling their children. Those who do usually decide to comply after all when their children reach the right age, if only because of the social pressure. Our children are still definitely preschoolers, but already I notice a shortage of children around who are older than our first-born and he's not three and a half yet. The other 3, 4 and 5 year olds are being prepared for the great separation either at child care centres, preschools or playgroups. Their parents are starting to melt into their children's intellectual background as they learn to rely on the professionals for their edification and enlightenment.

That's what prompted me to write this piece now, in the hope that we can make contact with others who are

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interested in educating their children themselves. It's not a decision to be taken lightly and just because my partner and I are committed to teaching our kids at home, I wouldn't dream of trying to coerce other parents into doing the same. It is a big responsibility and one which we embrace enthusiastically. Although we would love to share it with some other families, I have yet to encounter any other parents who are going it alone without some religious or institutional backing. We are atheists.

I've been eating up the academic literature on child development for many years. It all helps in building up a picture and learning to respond in useful ways to children's needs. But I learn most by actually being with my children and listening to them, responding to their curiosity when it's there. Teachers never have the luxury of the one to one relationship — the unique continuity which parenthood offers. The chance to tailor the curriculum completely to each child's needs.

> "Children go to school because children go to school. It's a very powerful convention all over the world these days."

To meet the challenge you need to have a pretty broad range of skills yourself. Fortunately my partner and I started with a good advantage. Between the two of us we can do most things and as our children grow we are learning to do much more. It's turning out to be quite a remedial course for me as I'm forced to make up for all the shortcomings of my own schooling. That's not to mention what I've learned from the children themselves. Their fresh minds make me reassess values and opinions as we re-encounter them together.

Plus of course you need lots of energy and determination, which usually isn't hard to find when the feedback is so immediate. Imagination is never in short supply. Children are always particularly well endowed, but unfortunately many have theirs squashed by adults who haven't the time or the inclination to share it.

It seems to me to be such a shame that most parents take it for granted that they cannot teach their children themselves. A self-fulfilling prophecy really, because they never give themselves the chance. If you expect your children to go to school then the tendency is not to teach them things, which you know they are going to be taught there anyway. A sort of what's the point of them learning it twice logic. And so the feeling grows through the years of childhood and the parents feel more and more impotent.

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But children aren't learning machines which can be turned on and off at the teacher's will. The best time to teach a child is always when s(he) wants to know. So a million opportunities may be lost before a child even sees a school. I'm not suggesting that we should ignore our personal projects to be completely in the service of our children. In fact, far from it, I'm a strong believer in incorporating children in the normal household routine as much as possible, but that's another story.

The point I'm trying to make is that although it isn't easy to put children down — if they don't get what they want straight off, they'll keep coming back — there will inevitably come a point, if we persist in ignoring their calls, where natural curiosity is dulled and the cruellest lesson will then have been learned: it isn't worth asking. When that happens only the most skilful teacher will be able to break the ice and provide the trusting relationship needed for the imagination to flourish again.

I suppose most, if not all, Earth Garden readers choose lifestyles which are in some important ways different from the conventional norm — or at least we'd like to make that choice. Appreciating the value of the natural world is very basic to our shared perspective and that great human pleasure of bearing and nurturing our offspring is more happily accommodated in a natural environment.

Babies' early chaotic sleeping and feeding rhythms are far easier to live with when there isn't a rigid working routine to follow. When you're working for yourself there's much more chance to choose when to do it. And the little ones are there right from the start, so they can see what you are doing and begin to learn what the business of life is all about at its most basic level.

As they grow and develop there is so much for them to get involved with. Their 'help' may at times be unwelcome and the chores certainly take a lot longer, but building houses, planting gardens, looking after animals and all those other good practical things involved in a self-sufficient lifestyle are the perfect input for young children. If you can't provide it for them in real life, they'll invent it for themselves. By accepting it and making the best of the simple possibilities that surround us, everyone gains and we learn how to live more harmoniously in the process.

Small community schools where parents can continue to be completely involved with their children's education whilst simultaneously sharing their skills with other parents and children would be a great way of extending our potential. That ideally is what we are hoping to find or found in the next few years. Some people have found something along those lines that suits their needs.

The Steiner schools are a case in point and judging by their proliferation in the past few years in this part of the world, they are filling what was an enormous vacuum. Unfortunately, I personally find the Steiner magical world hard to take and I'm keen to avoid presenting any dogma to our children as fact. Otherwise the system does have a lot of merits, at least in principle, by allowing the children to develop freely and giving their parents a role to play.

But for those of us who are less fortunate, what's on offer does not present a very attractive prospect. I don't want to knock the State school system. I know there are many people involved in education who put in masses of time and effort in country areas and in the cities. However, the basic structure of the system works against them. The ratio of teacher to students is the most common complaint and the most obvious expression of inadequate funding and facilities. The State could never afford the numbers of teachers that I believe are really needed to provide children with the education they deserve.

In practical terms only the parents can provide the wo(man) power. The inflexibility and unnaturalness of classes of children all the same age is a barrier in itself. The rationale that you can only teach children when they are all at the same level escapes me. In a broader sense I'm convinced that children miss out in their social development by being screened off from people of all other ages.

Steiner education flourishing

by Sophie Masson

Guyra, New South Wales.

WHAT is Rudolf Steiner education? Parents in northern New South Wales were able to find out recently, when the Boongaiai school for Rudolf Steiner education in Armidale held an open day. Several teachers and a visiting school co-ordinator spoke to interested parents about this style of education.

Boongaiai school was established two years ago, after many years of preparation, and now caters for preschool and kindergarten children. A Year One class is to be started next year, and each year will see more primary classes added. According to Ben Cherry, who started a Steiner school in Bowral with his wife in 1983, Steiner education aims at the wholeness of the child, following their natural development through.

"The child is wholly at one with her environment, feels everything through her senses, and does not compartmentalise knowledge," he said.

"The rhythm of the days is at the heart of Steiner education." Children who attend a Steiner school follow a carefully devised program which aims at providing guidance for the child without stifling natural creative impulses.

The preschool years (from three to five) provide a transition from home to school. The pre-school room is a harmonious one — painted in warm, soft colours, with displays made of natural materials, lots of musical instruments, and 'home' corners draped with soft material.

Helen Dalgleish, preschool teacher at Boongaiai, said that young children need a warm, loving environment with similar activities to those of home.

So preschool children bake, garden, set tables, as well as playing musical games, and engage in imaginative games based on materials they can pick up outside, such as shells, pine cones and stones.

"People made toys to restrict a child's imagination, because they are made as one thing — a doll, a car, or whatever, and so they can't be anything else," explained Ms Dalgleish. "But a stone, a shell, can be anything you want it to be."

A feature of Steiner classrooms is a corner set aside for a picture of Mary and baby Jésus, with offerings — flowers, shells — set around it.

"Yes, Steiner schools are deeply Christian," said Ben Cherry. But we do not indoctrinate children, we do not rule by fear. Children relate to the image of mother and child, they are trusting and full of love."

The aim of Steiner education, he said, was to keep the sense of wonder at the world, and the deep trust of the child, into adulthood, but growing gradually through a transition, so that it was not merely the all-embracing trust, but rather a guided one.

"The spiritual qualities of children often get ground down, and we want to foster them as being very precious," he said. Children learnt because they had a will to learn, a natural curiosity and wonder about the world.

"But they're not allowed to do whatever they want," he said. Brenda Vitartes, kindergarten teacher at Boongaiai, said her class only started this year. "Next year, we will have Year One as well," she said.

Moora- Moora community school

by Lesley Gunther

Moora-Moora co-operative, via Healesville, Victoria.

ON A fine day standing outside our little school and looking across to the west you can see past Mount Dandenong to the city scape of Melbourne outlined by Port Phillip Bay. On a very clear day you can see as far as Mount Macedon which must be at least 100 kilometres away. On those crisp autumn mornings when the sky is clear and blue with a decided bite in the air we often look down from our mountain to a sea of billowy clouds with the top of Mount Dandenong floating above the foam. Of course on those overcast and wet days when the whole mountain top is enveloped in mist our view vanishes. Our senses become attuned to those things close at hand — the lyrebirds scratching around outside under the trees, spinebills feeding from the grevilleas.

Our children's lives are enriched by growing up in this environment. They play amidst the garden and bush in its changing seasons. In autumn the Japanese maples, oaks, beech and chestnut as they change through reds and golds; hunting for mushrooms in the paddocks, cracking ice on the dams. In winter looking out for the first fall of snow, the arrival of the flame robins and black cockatoos. In spring the first burst of colour with the daffodils and jonquils; the bush first clothed in brilliant yellow and then splashed in purple. In summer lazy afternoons playing at the dam or reading under big shady trees.

Because the environment is naturally balanced and in harmony with itself we work towards helping our children develop a personal sense of attunement and balance — to confidently and constructively find their place in the world at large.

The children of Moora-Moora community school strolling in the bush near their school.

There is an 'Unclassified' in this issue of Earth Garden about the Moora-Moora community school.
—Camille & Alan.

. . ENERGY PULSE . . . ENERGY PULSE . . .

by Chris and Rhonda Martin

Coonabarabran, New South Wales.

Recently two of our friends replaced their old faithful washing machines with new ones. Both have experienced problems with the amount of power the new machines draw. In one instance the generator was no longer big enough to cope with running the electric motor.

Each family had upgraded their machines from simple to semi-automatic units because their families had increased thus requiring an unrealistic amount of time spent in washing with the old machines.

It appears that at least two manufacturers have replaced gearboxes in some models with reversing motors to cut down on wear and tear and costs.

When an electric motor starts up it requires up to ten times more power than it uses when running continuously. With these models the motor starts up, runs for a short time in one direction, stops, and runs for a short time in the opposite direction. This becomes a continuing cycle.

This means that the motor is running at full demand *all the time*. You either have to purchase a very big generator, which uses heaps of fuel, restrict yourselves to smaller models or pay excessive prices for less common models with gearboxes.

Any help in solving this problem would be appreciated.

Tarragon's story

by Tarragon Burgess

Armidale, New South Wales.

HI, MY name is Tarragon. I live on a block of about 310 acres. It is covered with trees and we called it "Wychwood". We live in a partly built house and I helped to build it. Once we had Easter in the house before we had the roof on, but now we live in it with a big open fire place. We have no power, no TV and no one to play with on the weekend. And also I have to sit on the Longford school bus for over an hour to get to Ben Venue, my school.

About a year and a half ago I got a dog and I called her Foxy because she is a Fox Terrier. She is black and white. We soon found out she was a good snake dog. I take her with me when I play in the bush. I also have a bike. I have a bow and a tomahawk. And I also have a muzzle-loader. It's great. I can use it when Dad is with me.

I like living in the bush, just wish some kids would move close by.

Tarragon with Foxy. They often go bushwalking together.

Moora Moora Festival

"FUN AND IDEAS FOR LIVING"

This is the theme for the next Moora Moora Festival, which will be held from midday to midnight, Saturday, February 25, 1989.

Moora Moora is a long-established co-operative community 16 km from Healesville (along the Don Road), an hour or so north east of Melbourne. Our annual festival has been an enjoyable event for many years. It didn't happen in 1988, so we are determined to make the 1989 festival better than ever.

Above all else, the festival is a family fun day. There is a programme of music and dance throughout the day with a bush dance to a live band in the evening. The Health and Healing area offers activities like massage and relaxation. There are demonstrations of all kinds, including caring for a horse (by some of our children), sheep shearing, crafts, building skills, alternative plumbing. Lots of activities are designed to amuse children. There is also delicious yet healthy food for sale.

Areas of interest include building, alternative technology, health and healing, conservation/ecology, organic gardening/farming, community school and arts and crafts.

Tours of the property will show the many unusual buildings, applications of alternative technology, and lovely views.

Admission prices have been kept down: $9 per adult, $4.50 per child or concession, and $20 per family. Everything is free except food and anything sold by selected outside groups we allow to set up stalls.

Watercress *(Nasturtium officinale)*

"A thing which will put life into one that is dull and unlustie. In Arabia the Cresses (by report) proove to a wonderfull bignesse."

—Pliny, 77 AD.

by Liz Sinnamon

Kenilworth, Queensland.

WATERCRESS is a herb native to Europe and Asia which is popular and well known in all continents of the world. It has an interesting peppery flavour, and has been a favourite salad and sandwich herb for many centuries in England and Europe.

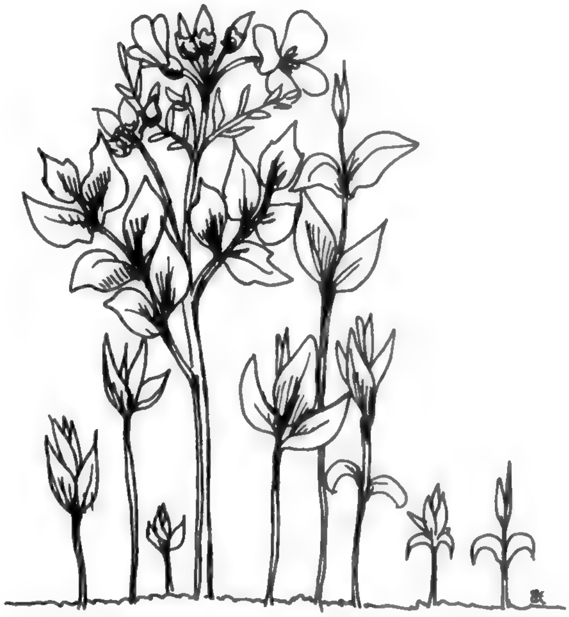
The creeping or floating plant has a hollow stem and produces many branches growing upwards. Leaves are dark green and glossy and plants grow to 30 cm (12 inches) tall. The white flowers grow in elongated clusters and are covered in yellow pollen.

Although watercress grows best in running water, it can be cultivated successfully in a very damp, shaded part of the garden. After selecting a suitable site, dig a trench approximately 30 cm (12 inches) deep, and fill with a mixture of river sand and soil. Place seed 15 cm (six inches) apart, and keep it moist until the tiny seedlings appear. Alternatively, plants can be propagated easily by placing a bunch of watercress in a jar of water until the first roots appear. At this stage simply transplant into the prepared bed. To supply enough water for healthy vigorous growth, a thorough soaking of the bed is essential at least every two or three days. The more watercress is picked, the thicker it will grow. Constant picking during summer will stop the tiny white flowers from appearing.

Cuisine

Watercress is delicious raw in salads and sandwiches, but can also be lightly steamed as a green vegetable. The fresh leaves go particularly well with meat because of their fresh, spicy flavour.

Watercress mayonnaise is a delightful addition to egg salads. Blend two egg yolks at high speed and slowly add a cup of olive oil, a tablespoon of white vinegar, freshly ground pepper to taste and half a cup of freshly chopped watercress, until the mixture is an even colour and texture.



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Watercress soup is another tasty treat. After cooking three potatoes and an onion in a litre of water, blend with a large bunch of watercress and a small bunch of parsley. Return this mixture to the stove, and add half a cup of cream and pepper to taste.

Medicinal

As watercress is a water plant, it is an excellent source of minerals, and contains a higher percentage of essential organic minerals than spinach, is richer in vitamins and supplies almost twice as much vitamin C. Its sulphur content has a noticeable effect on the proper functioning of the glands, particularly the pancreas, and is especially good for building up the blood in cases of anaemia.

It contains a small amount of iodine, so is also helpful in the treatment of goitre. The juice can be used to make an excellent ointment for burns and scalds. (Four to six grams of juice mixed with 30 grams of lanolin).

Ample use of watercress in the diet can be considered as good preventive medicine, and an aid towards good health and a perfect complexion.

— A Day in the Life of Brownie —

In the next issue of Earth Garden (February 1989) we will be unveiling a new book published by Earth Garden, called 'The Healthy House Cow'. It will be Australia's first house cow book written from an organic, holistic perspective. Marja, a long time contributor to Earth Garden, has written this entertaining and fact-filled book, through her many years of experience with dairy cows. In the February issue we will be publishing an article based on extracts from the book which covers a few of the many topics raised.

by Marja Fitzgerald

Mongogarie, New South Wales.

TODAY is the sixth day since Brownie's arrival. We bought him as a five day old bull calf from Fairbrae Jersey Stud. Fairbrae have some of the best Jersey milking cows in Australia and they sometimes have surplus male calves for sale. As our chosen foster mother, Kylie, comes from Fairbrae, we thought we'd get her a relative to raise.

Kylie already has a foster calf. We'd bought Salky (also from Fairbrae) to foster onto Aida, our then-new Australian Illawarra Shorthorn. However, Kylie took over unasked, though she had her own calf, Spot. When Spot was sold we bought Brownie. It took Kylie four days to accept him.

Right from the first day, Kylie would let him suck while she ate her bucket — in the paddock, not even restrained in the bales! And four days later she would let him suck while she grazed, proving herself to be a very good foster mother.

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This morning as usual I put Salky, Kylie's other foster calf, in the front house-paddock. I separate him from Kylie for a couple of hours to let Brownie have a little extra milk. Kylie I put with Brownie in the back house-paddock. An hour later I let Kylie and Brownie out.

Yesterday had been Brownie's first venture outside his little paddock. I had put him and Kylie out at three o'clock. The other animals were in sight. First Brownie tried to suckle Matilda donkey. She gently dissuaded him. She's become very good with calves; she has appointed herself calf-nanny, and plays with them, shepherds them up to the house at Bucket O'clock (feed time) and protects them from dogs. But she draws the line at suckling them.

Brownie next tried to suckle Aida. She kicked at him firmly, so he went back to Kylie. Today was to be Brownie's first whole day outside. He followed the other animals down to the shed. Here Aida lay down to chew her cud while Matilda and Kylie grazed. Brownie lay down and fell asleep.

An hour or two later Steve and I were outside, and heard sad bleatings. Brownie was standing up looking around forlornly, making mournful cries. The others had gone on their way while he was asleep. We were near the house, and called him. He made his way slowly up the hill, with pauses to complain about how hard life is.

I put him in the back house-paddock, and let Salky through to keep him company. Though Salky is only five months old, he's a bull calf who likes to think he's a bull of the herd. Not only does he mount the cows, he even mounts Matilda donkey when she's on heat . . . however he hasn't hurt Brownie, and is starting to be friends.

At around 3 pm Kylie was in sight, so I dragged Brownie towards her, till he spotted her — then he dragged me! Meanwhile Salky was bellowing at being left behind, and was pacing the fence. I heard a smash, then Salky came barrelling out of the kike paddock! He'd smashed the rickety gate between back and kike paddocks, and was now racing through the open kike paddock gate and down the hill towards Kylie.

The sight of his pram halfway down the hill stopped him. 'His' pram is an old yellow-painted steel doll's pram that came with the property. All our bull calves have loved playing with it, and Salky is no exception. So when he spotted it he paused to bash it up briefly — it makes a very satisfying racket when bashed — then galloped on down to Kylie. He stopped abruptly at her side, sniffed Brownie, and calmed down.

Slowly the herd, (cows, calves and donkey) wandered off again, into the blackwattles beyond the old mill. At Bucket O'clock (just before sunset, when they all get fed) no-one was in sight. I made up the various food and mineral mixes, and called.

A few minutes later Kylie and Salky appeared, but no Brownie. Then I heard the familiar mournful bleat from the blackwattles. I called Brownie, and he emerged slowly, still bleating. I spotted Matilda emerging from the blackwattles a little way from Brownie. She's a smart donkey, and likes to help . . . she broke into a prancing gallop, which encouraged Brownie to break into a run. Soon everyone was up at the house.

Brownie looked rather thin. I saw that he's wasn't getting enough milk from Kylie, so decided to start giving him an evening suckle from Aida. Aida hasn't got a calf but supplies our needs for fresh milk, cheese, yoghurt and cream, and we get more than enough. I figure that she can give Brownie her evening supply. We'll milk in the mornings and still have enough.

So I locked up all bar Aida and Brownie with their buckets, and put Aida in the bales with her bucket. I did up the back chain and attached the leg-rope. Then I brought Brownie to the leg-roped side. He happily began suckling. Aida attempted a kick, then ignored him and continued at her bucket.

When she finished eating, she began kicking more seriously. The leg-rope prevented her doing any damage to Brownie. "Uh-uh! No kicking in the bales, Aida," I said firmly. When she stopped kicking, I praised her. Soon she was standing still, but her eyes and ears displayed that she was still uneasy.

"It's all right, girl," I reassured her. But the reassurance didn't help much . . . I suspect she was worried that we'd stop milking her. Being milked makes her feel important. After ten minutes of feeding, I put Brownie in the back house-paddock as usual for the night. I had to drag him away from Aida . . . and so ended his sixth day at Marangaroo.

access

Federal Senate Inquiry into Agricultural and Veterinary Chemicals

On November 1 the Australian Democrats succeeded in a year-long bid to establish a Senate Select Committee to investigate the use of chemicals in Australian farming. The committee will also look at healthy, non-chemical alternatives to harmful modern farming practices. It is interested in receiving submissions from people with experience of the damage caused by chemical-dependant farming, and from people who are involved in biological, non-chemical and ecologically-sustainable agriculture and horticulture. This Committee deserves support and readers are encouraged to consider making submissions. The Committee will advertise terms of reference and submission dates in newspapers and Earth Garden will provide dates and addresses as soon as they are available.

FEBRUARY

Problems to look for

Fruit fly, codlin moth, bugs, light brown apple moth, two spotted mite or red spider, oriental peach moth, pear and cherry slug, woolly aphis, apple and pear scab, black spot, brown rot, cabbage white or cabbage moth caterpillars, aphids on cabbages and caulies, 28 spotted ladybirds, potato moth, bean fly, white fly, bud worms in corn, sooty mould.

Control

Mildewed vines. At the first sign of mildewed pumpkin, melon or grape vines, pull off the infected leaves and compost or burn them. Make sure the soil is well mulched to stop contact between vines and damp soil—and any leaf residues in the soil. Spray with chamomile tea or milk if the infestation is light, otherwise with half strength Bordeaux. Spray under the leaves as well, and on top of the mulch where spores may linger.

Brown rot. Pick any infected fruit before it harms the rest. Stone fruit for storage can be treated by dipping them in hot water for about 30 seconds. If their skins shrivel hold them under for a shorter time. You'll need to experiment according to the heat of the water and the moisture content of the fruit.

Mites. Use milk spray if mites are a problem. See January for scab and codlin moth.

Cabbage white and cabbage moth butterflies. These may be a problem on young brassica seedlings. In very bad areas it may simply be best to plant seeds later, or to plant advanced seedlings that have been kept under nets — more mature plants are less vulnerable, and there are fewer pests later in the season. Try covering your beds with mosquito nets, use repellents or try decoys of white eggshells between the plants. A green hessian or reflective mulch is also effective. *Any* interplanting will cut down caterpillar attacks, because the parents recognise the hosts by shape—the more shapes the more confused they become. As a last resort try Dipel or derris dust or spray.

Preventive measures

•**Pruning.** This is a good time for summer pruning, especially vines like kiwi fruit, now the fruit has set. Cuts won't be as susceptible to woolly aphids or fungal or bacterial conditions. A little bending back of unwanted growth will check plants far less than a rigorous pruning in winter, and cuts will heal quicker. If you must prune apricots or cherries, do so now. Pruning now shouldn't encourage soft growth in autumn which will be hit by frost.

•Keep up fruit fly lures.

•Keep up codlin moth lures, derris and Dipel sprays and orchard hygiene — pick up all fallen fruit, pick out all damaged or infested fruit.

•Inspect apples weekly for codlin moth damage

•Pick out fruit infected with brown rot and prune off dead twigs that may also be infected.

•Spray black spot-infected foliage with chamomile tea.

•Prune out foliage affected with powdery or downy mildew, renew mulch to stop spores spreading, be careful not to transfer spores on skirts or tools.

•Push in old tin cans as root guards for club root on brassicas.

•Mulch potatoes for potato moth.

•Plant strawberries now round fruit trees to help attract predators against oriental fruit moth.

MARCH

Problems to look for

Fruit fly, codlin moth, bugs, light brown apple moth, two spotted mite or red spider, pear and cherry slug, woolly aphis, apple and pear scab, black spot, brown rot, bacterial blight in walnuts, sawflies.

Control

Try derris spray against sawflies, and place a bird table and water under affected trees to attract the birds that will control them naturally. Or dust small trees with dehydrated flour: it acts as a stomach poison and kills the sawflies.

You'll be picking apples now — make sure you don't store any with codlin moth blemishes—the moths will hatch and increase the problem next year. Use any blemished fruit at once and dispose of any 'worms' carefully. Check eggplant too: they can also be infected by codlin moth, and infested plants should also be disposed of under water or in sealed bags.

Keep up fruit fly lures till there have been none caught for three weeks. Keep an eye out for red spider, pear and cherry slug—though most pests will be vanishing as the weather cools down.

Spray foliage infected by black spot with chamomile tea, chive tea or horseradish spray. Pick off affected leaves: the black spots will always blight them.

Preventive measures

•Keep up fruit fly lures.

•Keep up moth lures, derris and Dipel sprays.

•Inspect apples weekly for codlin moths.

•Pick out fruit infected with brown rot, prune off dead twigs that may also be infected.

•Prune out foliage affected with powdery or downy mildew, mulch to stop spores spreading.

•Make sure organic matter in the soil is decomposed for onions and other root crops. *Don't dig it in.*

•Plant flowers to attract predators in spring.

•Plant Chinese cabbage to trap spring aphids.

•If you are troubled by chocolate spot on broad beans, try dusting area with wood ash at planting, and make sure you plant the rows with the prevailing wind, to maximise air circulation.

APRIL

Problems to look for

Codlin moth, fruit fly in warm areas, bugs, black spot, powdery and downy mildew, aphids on early broad beans, shot hole, bacterial canker, black peach aphid.

Control

Orderly gardeners will have been preparing for broad bean sowings by adding potash in wood ash, or comfrey or good compost to the soil. This improves fruit set in both hot and frosty conditions and makes the plants much less susceptible to chocolate spot.

This is a good time of year to make compost (not because the compost will move quickly — hot weather means faster compost) but because you'll be pulling out spent crops in the garden for the spring meals of broad beans and peas.

Besides, there are ways to make compost decompose more quickly if you are prepared to make the effort: adding a regular dose of liquid green manure, covering with black plastic, and keeping it in small enough piles so it will heat quickly. Summer compost is best made under broken light, like a tree — preferably an elder tree if you have one, to help decomposition. Winter and autumn compost is best made in the warmest area around.

If your compost fails to heat up at this time of year it is probably either too dry or too wet (stick your hand in and see) or lacks nitrogen. A compost heap should be warm in the centre after three days even in the snow. If it's not there's something wrong.

This isn't a bad time of year for pests — the great population explosions have been and gone and predators should have built up to cope with the remnants.

If you have winter-maturing fruit keep up your **fruit fly** traps and orchard hygiene. Otherwise just make sure that you don't have any old fruit in nice warm slowly decomposing compost heaps or pits — places where fruit fly can cosily overwinter.

Check any late-maturing apples like Democrats or Grannies or Lady Williams every few days for the sawdust-like deposits from codlin moth larvae. If you find any pick off the apples and either feed them to the animals or stick them in a plastic bag to anaerobically compost over winter.

Remove any old ladders or boxes near the trees where codlin moth can hibernate, pick up any windfalls or let the chooks do it for you.

Harlequin beetles. If you're troubled with harlequin beetles in the garden — sometimes called push-me-pull-yous because of their active sex lives — stick some broad pieces of cardboard on the ground around the garden. Check each afternoon for sheltering beetles. This should reduce the numbers in your garden next season considerably.

Autumn aphids. You may also have an infestation of late aphids. These should be more easily cleaned up by predators than early spring aphids. Try wormwood spray, lantana spray or any of the gentler specific sprays if the pest really appears to be damaging your plants.

Preventive measures

•Clean up all fallen fruit and garden debris, especially mildewed leaves or other diseased material. Feed it to animals, burn or hot compost.

•Collect black parasitised woolly aphids and keep them safe indoors till spring.

•Plant broad beans where tomatoes are to go in spring to help prevent verticulum wilt.

•Add wood ash where broad beans are to go to help prevent chocolate spot.

•Spray celery with Bordeaux for celery leaf spot.

•Keep up codlin moth lures and fruit inspections till the lures are free of codlin moths for 2 weeks.

•Check fruit fly traps. Don't feel secure till they have been free for three weeks — a temporary cold snap can give you a false sense of security.

•Pick off broad bean tips infested with aphids; rinse thoroughly and steam, boil or stir fry and eat (very tender, a mild spinach-like flavour).

MAY

Problems to look for

Codlin moth, fruit fly in warm areas, bugs, leaf spots, woolly aphids or sooty mould on evergreens, wood cankers.

Control

This is a month of prevention. Prune off dead twigs, look for cankers and prune back to good wood 'mummies', band apple trees with grease, corrugated cardboard or old wool to help control codlin moth and oriental peach moth, and clean up old ladders and fruit boxes where moths may be sheltering. Let hens scavenge around the orchard to pick up old fruit or insects on the ground.

Many garden catalogues come out now. Start thinking about ordering pest control plants for next season: wormwood, pyrethrum, helleborus, feverfew, elder, chamomile, horsetail or chives for sprays, strongly scented plants for repellents, flowering annuals and shrubs to attract bird and insect predators.

Take lavender cuttings now — place them in pots that can be moved around the garden. Lavender's scent and shape is a great deterrent for many pests.

Preventive measures

•Inspect all apples for storage for signs of codlin moth; and fruit boxes, sheds and ladders for cocoons.

•Spray citrus at petal fall with half strength Bordeaux for scab and other problems.

•Check fruit fly lures in warm areas.

- Inspect root vegetables still in the ground for cankers or rotting. If you find any affected dig them out and leave the hole open to the sun to stop it spreading.
- Spray any annual seedlings with chamomile tea. Cool moist winter weather may cause a range of fungus problems.
- Place clear plastic over tomato patches for three weeks to clear up any verticulum wilt infection (or plant broad beans or try both measures).
- Plaster trees with a cow manure and clay paste for two spotted mite or red spider and overwintering codlin moth cocoons.
- Spray Bordeaux at leaf fall for bad cases of curly leaf, brown rot, apple and pear scab, bacterial blight of walnuts, canker, black spot and mildews.
- Spray with full strength urine for apple and pear scab to control remaining spores in the orchard.
- Spray strawberries with half strength Bordeaux when fruiting stops for leaf spots and berry rots.
- Clean out greenhouses now, and leave them open to the sun for a time. Take shelves out to air, and wash them in mild disinfectant if they may be harbouring fungus or disease spores.
- Mow under fruit trees closely or bring animals into the garden to make sure all fallen fruit and other residues are cleaned up.

JUNE

Pests to look for

Onion maggot, fruit fly in warm areas, bugs and leaf spot.

Control

This is the waiting time, the watching time, the time to clean up and plan. It's a quiet time. See which way the frost flows in your garden, which birds are resident through winter, what spaces you have left to plant and where the sun and shadow lines are in the new winter angles of the sun.

In most areas there are few pest outbreaks at this time of year. However, you may have overwintering populations, especially of fruit fly and codlin moth. Any remaining fruit or windfalls should be rigorously checked to prevent an early pest buildup when the weather warms. This is also a good time to think about planting to reduce pest problems next year.

If you have apple trees mark which parsnips you will let go to seed and in spring let the parsnips or other umbellifera spring up wild around the orchard to reduce codlin moth infestations. Choose some brassicas, especially broccoli, to flower too — flowering brassicas will attract hoverflies and lacewings and a range of wasps.

Midwinter is the classic time for preventive spraying with Bordeaux against curly leaf (pinkish raised blisters on peaches and almonds), rust, shot hole (small holes in leaves, especially apricots), brown rot (just that: a brown soft rot on fruit, sometimes with a furry outside), black leaf spot, bacterial blight in walnuts and other fungal and bacterial conditions.

I try to avoid preventive spraying for anything. Even curly leaf, which is disfiguring, usually doesn't harm the tree unless it is very young, or the disease is so bad that new shoots wither and fruit sets badly. But if you have had problems with the above conditions in the past, or your neighbours have, or you have young trees you wish to cherish, it is probably best to give them a Bordeaux spray when they are dormant. In very bad cases spray at leaf fall and again at bud swell — just before buds start to colour. Otherwise one spray should be enough.

Preventive measures

Rub off loose bark from trees, especially in crotches, to stop overwintering mites or 'red spider'.

- Clean up slow 'compost heaps' (rubbish). They may be harbouring such pests as slugs, snails and harlequin beetles which will be a problem in spring.
- Inspect all apples for storage for sign of codlin moth; and fruit boxes, sheds and ladders for cocoons.
- Check fruit fly lures in warm areas.
- Spray Bordeaux or alternatively, at leaf fall, for bad cases of curly leaf, brown rot, rust, shot hole, bacterial gummosis, apple and pear scab, bacterial blight of walnuts, canker, black spot and mildews.
- Use full strength urine for apple and pear scab.
- Prune out all dead wood, especially twigs.
- Pick off shrivelled 'mummies' from fruit trees.
- Put ash between onions to deter onion maggot.
- Spray currants with Bordeaux for mites.
- Bordeaux vines for mites, rutherglen bugs.

JULY

Problems to look for

Early aphids (black and green) woolly aphids, early scale, leaf spots, sooty mould on evergreens.

Control

Finish the jobs not done last month. Don't leave them any longer or new growth may surprise you.

Sooty mould grows where sap suckers have been feeding — try grease banding to control ants. Wipe off the mould with a soapy wettex, or wait and it will flake off.

This is a good time to squash **woolly aphids** between your fingers — the trees are dormant and the white ovals easily visible.

Scale can be controlled with an oil spray (as long as the temperature is under 24° C). It can also be rubbed off with your fingers.

Preventive measures

- Spray with home made oil spray against scale and other overwintering pests (do not combine with Bordeaux, and leave at least ten days between sprays).
- Spray apples and pears with full strength urine for apple and pear scab.
- Spray roses immediately after pruning (prune roses next month in cold areas) with Bordeaux, full strength urine or other fungicides.
- Remove loose bark from fruit trees to disturb overwintering pests. Place grease bands on fruit trees if they are likely to be infected by red spider (two spotted mite).
- Renew mulch in the garden and orchard to cover up infected debris from last season.
- Whippersnip the flowering tops off weeds to prevent build up of thrip and mites in spring.
- Clear away rubbish heaps and add nitrogen and moisture to slow compost heaps to prevent bugs sheltering and breeding there for a population explosion in spring.
- Greaseband trees to stop ants for aphids.
- Leave land completely fallow for six weeks to reduce cutworm infestations.
- Clean up garden rubbish and make a final winter compost heap.

AUGUST

Problems to look for

Woolly aphis, red spider or two spotted mite, pear leaf blister mite, vine leaf blister mite, powdery mildew, brown rot, curly leaf, rust.

Control

Pests like soft sappy growth and this is a good time for it. If you are worried by pest outbreaks in spring try not to water spring crops. Don't fertilise them till the spring flush is over and never give high nitrogen fertiliser. Try to cut down on soft early growth. Later, more even growth won't be so pest attractive and by then there'll be more predators around to deal with them.

Any efficient organic fertilising regime will help. Avoid high nitrogen fertilisers, relying instead on the steady fertility from decaying organic matter in the soil. Don't use any fertiliser in late winter when there will be excess nitrogen free in spring. Don't water once a week, or when the soil is dry. Constant moisture from drip irrigation and mulch is more effective, and not just for controlling aphids. Scale and two spotted or red spider mite on the other hand may be reduced with a strong overhead spray.

It is no myth that organically grown produce has a greater resistance to many pests. If you doubt this organise your own trials. Feed one lot of plants with urea and another, across the garden or orchard, with compost. Note the level of pest infestation on each.

This is the time to let last year's crops flower, instead of hauling them all out. The adult form of many predators will be attracted by flowers. This is also the time to be planting flowers: native shrubs for winter flowering (most garden predators are natives too), and annuals for midsummer heat.

Pull out parasitised woolly aphids now: the small wasps will hatch and help control the pests in your garden. Try sticking bee pollen onto any plant that you suspect may be pest prone to attract the predators to it.

Preventive measures

- Spray deciduous trees and shrubs again at bud swell with Bordeaux or other fungicides if the previous year was bad for curly leaf, brown rot, bacterial gummosis and others.
- Start spraying with dilute marmite to attract lacewing and hoverfly predators.
- Spray vines and berry fruit with Bordeaux or other fungicides.
- Put out fruit fly lures and check weekly to see if they are flying.
- Renew mulch in the garden and orchard to cover up infected debris from last season.
- Spray blossom with chamomile in wet weather or, if brown rot has damaged it, earlier, to improve fruit set.
- Water trees thoroughly with overhead sprays if there are thrip in the blossoms. Count the thrip. If there are more than 6 per blossom consider spraying to save the crop.
- Spray onions with Bordeaux for mildew and onion neck rot.
- Put out slug and snail baits, traps and fences to protect seedlings and soft new spring growth.
- Use foil mulches and bug traps at the base of fruit trees for stink and other bugs.

SEPTEMBER

Problems to look for

Scale, thrip, aphids, bugs, black spot, apple and pear scab, shot hole, carrot fly, bean fly, green vegetable bug, leaf spots, woolly aphids, sooty mould, whitefly, harlequin beetles, grasshoppers, young caterpillars, rust, brown rot on blossoms and twigs, curly leaf, apple and pear scab, shot hole, mildew, codling moth in warm areas, chocolate spot on broad beans, apple dimpling bug.

Control

This is the time when deciduous trees start to put out green leaves and evergreens new shoots. This young growth is soft and juicy and prone to pest damage, especially from aphids.

Aphids start to breed when the temperature reaches about 4° C. Unfortunately predators like ladybirds don't breed up till the temperature is much warmer, and long, cloudy moist springs may mean aphid trouble. The best aphid prevention is a good crop of flowering natives through winter to attract the birds — as well as water and shelter bushes for them. Even nectar eaters usually catch insects when they are nesting and feeding their young about now.

Otherwise, try spraying with dilute marmite to attract hoverflies. Use strong jets of water, or just rub the aphids off with your fingers. Aphids won't fly over reflective mulch — try alfoil — or nasturtiums. As a last resort try lantana, wormwood, nettle spray or derris spray.

Thrip may be attacking blossom now as winter weeds die off and the thrip need to look for alternative food supplies. They are particularly attracted to apple blossom. Even six thrip per blossom can mean poor fruit set or deformed fruit. Their invasions can be prevented either by controlling winter weeds, or better still by making sure there is alternative flowering ground cover. I find nasturtiums are excellent around susceptible trees. Try onion or derris spray.

Woolly aphids may be sucking now too, especially where plants have been too heavily pruned. Consider summer pruning instead — wounds heal faster — and only prune if really necessary.

Mites. If the temperature is below 24° C you can still spray white oil to control mites, scale or mite eggs.

Preventive measures

- Plant onions with carrots to deter carrot fly.
- Put out slater, cutworm and earwig baits.
- Tie up black woolly aphids on infected trees.
- Prune winter flowering natives now, as soon as flowering finishes — not much, just cut out dead wood, old flowers and generally trim them.
- Make sure you have flower crops coming on: vegetables gone to seed, annuals planted last autumn like pansies and sweet peas, spring flowering shrubs like bursaria, clematis and wonga vine.
- Cover the ground with clear plastic for three weeks after brassicas if they have been infected with black cabbage rot.
- Spray fruit with chamomile tea or regular seaweed sprays for brown rot and blossom fall due to curly leaf or brown rot.
- Check fruit fly lures and put out codlin moth lures now, or a week before the first codlin moth was caught in your trap last year.
- Plant nasturtiums under fruit trees to help control aphids and woolly aphids.
- Spray apples at green tip stage with Bordeaux to control scab and bitter rot.

OCTOBER

Problems to look for

Aphids, bugs, jassids, thrip, grape vine moth, vine leaf blister mite, powdery mildew, codlin moth, black spot, apple and pear scab, brown rot, leaf spot, shot hole, harlequin beetles, sooty mould.

Control

There should be more predators now the weather is getting warmer — hoverflies and lacewings darting around the blossoms in your garden and clearing up the remnants of the early spring pests. Scale, however, seems to be less succulent for predators, especially birds. I find that birds clear up aphids and thrip first and only move onto scale as the weather warms up.

A small infestation of scale in spring will actually help control new pest prone sappy growth but if there are still scale on your trees you should probably think about controlling them. Try and hose them off, or wipe with a soapy wettex if the plant is small. If the temperature is under 24° C, and you confidently expect it will stay that way for ten days, spray with white oil. Pyrethrum, quassia, nicotine and soap sprays will clear scale. Make sure all the trunk and branches are covered too but please: avoid using these if possible because you will kill predators. If you must spray leave every second row untouched, then spray these a week later, to leave a predator reserve.

If you are pestered with severe outbreaks of scale in spring look at your general cultivation. Late winter Bordeaux sprays may be the reason, killing off predators. If so, spray in early winter or only spray every second row, finishing off the rest ten days later. Avoid windbreaks of tree lucerne, osage orange, japonica and hawthorn — they carry San Jose scale. Weak sappy growth from too much nitrogen and water will also encourage scale.

Sooty mould on citrus, camelias and oleanders can be a scale, ant or aphis problem, encouraged by excreted honey dew. Try grease banding the base of the plants or growing tansy around the trunk to control ants, aphids, brown and black scale, sooty mould.

Aphids can also attack carrots at this time of year — try a vigorous hosing or, even better, squash them between your fingers and leave the residue on the foliage.

White fly swarm up in clouds if disturbed on carrots and other root crops, ferns, grasses, citrus and rhododendrons. They are worst in spring and autumn. Try spraying with soapy water (don't use detergent) or garlic spray.

If the problem persists use rhubarb leaf spray or nicotine spray but these are **poisonous** so should only be a last resort.

Yellow painted boards covered with glue or motor oil should become covered in white fly lured to their deaths by the vivid colour.

Harlequin bugs. If you have hordes of **harlequin bugs** don't panic. These yellow, black and orange bugs are often too intent on their sex lives to do much damage. Prevent them building to plague proportions by cleaning up old pots, wood heaps, inactive compost piles and other debris where they could shelter. Put reflective foil under any plant they find desirable (holly hocks are the prime target in my garden) or check favoured plants daily and hose under the foliage where they will be sheltering. In desperate cases garlic, quassia, wormwood or rhubarb leaf sprays can be used.

Preventive measures

- Spray apples and pears, when three quarters of the blossom has fallen, with dilute urine for apple and pear scab.
- Keep up seaweed sprays for brown rot and general fungal and bacterial problems.
- Let parsnips and other umbellifera go to seed for codlin moth control.
- Skirt trees with hessian traps for fruit tree weevil, which pupates in the branches.
- Spray grapes when the shoots are less than 100 cm long with Bordeaux for **black spot** and **powdery mildew.**
- Strawberries should be Bordeauxed about now for black spot, mildew and a range of fungi.
- Check for **stem borer** in currants — prune off infected branches.
- Keep up **codlin moth lures** and **fruit fly traps.**
- Keep a good supply of chive or chamomile tea on hand for problems such as **black spot, scab, mildew** or **brown rot**. Spray affected plants every couple of days.
- Spray berry fruit now and grape shoots to control black spot and other fungi and mildew.
- Mulch strawberries and rhubarb now. Mulching now prevents leaf disease later.
- If brown rot has been a problem in the past you may need to thin your fruit. Use casuarina, seaweed or horsetail tea as a preventive.

NOVEMBER

Problems to look for

Aphids, codlin moth, bugs, oriental peach moth, black spot, apple and pear scab, brown rot, powdery mildew — especially of vines, bean fly, fruit fly, oriental fruit moth, rust, freckle, shot hole, early pear and cherry slug, harlequin beetle.

Control

Curly leaf. By now your peaches will have curly leaf if they're going to get it this year. You can't cure the affected leaves but badly infected young trees could be sprayed with a 1 in 10 Bordeaux mixture, which will at least save young leaves coming on and new shoots, even if it burns the old foliage. If the condition isn't quite so bad try spraying with **chamomile tea** every few days for a couple of weeks. Or just hope that a hot dry summer will solve the problem without intervention.

Brown rot. Your apricots should have been sprayed with Bordeaux in winter to reduce brown rot in the fruit now. If brown rot appears pick off all affected fruit at once then spray every week with garlic spray or chive tea. Thinning the fruit will let air circulate and help reduce brown rot.

Prune apricots after you've picked the fruit — if they need it. Apricots require little or no pruning. What needs to be done — if the trees are too high, for example, or branches are rubbing — should be done in high summer so the wounds can heal quickly and there is less likelihood of die back or bacterila gummosis as infection enters.

Pear and cherry slug may be attacking pears, cherries, hawthorns and sometimes plums, apples and quinces. The slugs are small soft larvae that leave webbed holes in the leaves, in bad cases causing complete defoliation. Hawthorn bushes are a good reservoir for infection: avoid them if you want to grow cherries. I've found that natural predators — wasps and yellow robins in particular — clean up most of my pear and cherry slug, but it took several years.

Keep the trees growing as strongly as you can to outgrow damage. Try 'suffocators' — browned flour, dry wood ash, or lime. Mix derris with water for a high reaching spray. Dipel is also effective, though pear and cherry slug aren't caterpillars.

Mites. 'Red spider' infect a range of fruit, vegetables and ornamentals, including roses. They are worse in dry periods. Try overhead watering, mulch weeds below the plants — especially capeweed and clover — and use a milk spray: mix half a cup of buttermilk with four cups of flour and 20 litres of water. Spray every couple of days till the mites are cleared.

Celery leaf spot can be controlled with Bordeaux spray. Wipe it on with a wettex or paint brush if you don't have spraying equipment, and mulch to help prevent recurrence. Wash the celery before eating it.

Slugs and snails may be attacking soft 'forced' plants like lettuce and young seedlings. Use traps or tread on them or make a wormwood tea to repel them from precious seedlings.

Downy mildew may first appear now on grapes. Use half strength Bordeaux to control it.

Preventive measures

- Check fruit fly lures.
- Check citrus fruit and early fruit like loquats for fruit fly stings.
- Check codlin moth lures.
- Keep an eye on stone fruit for early signs of brown rot — fruit and perhaps foliage may need to be thinned for better air circulation.
- Paint borer repellent on sickly or old native trees.
- Use traps for apple root weevil.
- Spray berries with chamomile tea for fungal problems and fruit rots.
- Band trees with hessian for oriental fruit moth and codlin moth larvae and inspect every two days.
- Plant clover now to be a companion crop with brassicas planted in January. Mow the clover and dig a path to plant the seedlings, then let the clover grow and flower when they are finger high to help protect against cabbage white butterfly caterpillars.

DECEMBER

Problems to look for

Borers, Christmas and other beetles, codlin moth, fruit fly, two spotted mite or 'red spider', oriental peach moth, pear and cherry slug, aphids, bugs, codlin moth, fruit fly, black spot, apple and pear scab, brown rot, powdery mildew, white fly, oriental peach moth, stem borer in currants, light brown apple moth, wingless grasshoppers.

Control

This is the hot time, with mildews and fruit rots and other problems of humidity. Thin out fruit if necessary to help control brown rot, avoid transferring mildews on tools and clothes.

December is the beginning of the serious fruit fly season. This is the real test of how vigilant you have been with lures, baits and orchard hygiene. Make sure your traps are kept topped up with bait. If you haven't already done so place cans of repellent near tomatoes and fruit crops.

Grasshoppers may be a problem now as green grass dries off. See January for control measures.

Keep a look out for the first signs of brown rot and pick out infected fruit at once. Spray with seaweed casuarina or horsetail tea as a preventive, or double strength chamomile or chive tea. If mites are mottling leaves try milk spray. Scale may attack grape vines now — try grease banding the trunks to stop ants spreading them. A regular Bordeaux routine may have killed off many predators. Remember never to spray all plants at once — spray alternate trees and spray the rest ten days later to conserve predators. Use pyrethrum spray if the scale is severe.

Make sure fruit is checked once a week for codlin moth damage. Pick out infected fruit at once. Woolly aphids may infect pruning wounds — see January.

Preventive measures

- Keep up seaweed sprays for brown rot and other problems.
- Check codlin moth and fruit fly lures.
- Make sure fruit fly repellent is in place as fruit and vegetables start maturing. Early fruit fall may be a sign of fruit fly or codlin moth damage.
- Start checking apples weekly for signs of codlin moth infestation.
- Dust under grape vine leaves with powdered sulphur or use half strength Bordeaux spray for downy mildew.
- Plant beans now in aphid-prone areas — later plantings are less susceptible.
- Spray strawberries with half strength Bordeaux for leaf spot and fruit rots when the spring fruit flush is over.

Repellent spray 'recipes'

Horseradish fungicide

Take a container of horseradish leaves and chop them finely. Cover with boiling water and leave to steep for 48 hours. Use diluted with three parts water to one of horseradish spray. Horseradish spray can be used at any time of the year. It is a mild fungicide and its use may have to be repeated every few days. Try spraying fruit with horseradish spray if it is threatened with brown rot, or use it if necessary when plants are flowering and anything else may damage fruit set.

Bordeaux mixture. Always make Bordeaux mixture yourself. It doesn't keep, and commercial mixtures aren't traditional Bordeaux. Always use Bordeaux within an hour of making it or it will start to separate. Try not to use Bordeaux too often — try the other, 'softer', fungicides first. Too much copper can affect soil fungi (high humus levels can reduce this) and may also kill predators.

If you have trouble with scale in spring and have been spraying with Bordeaux this may be the reason. Try spraying every second bush, then spraying the rest ten days later so you still have a nucleus of predators for when pests start to build up.

The recipe is to mix 90 g of blue copper sulphate with 4.5 litres (one gallon) of cold water in a non-metallic container. In a second non-metallic container mix 125 mg of slaked lime (brickies' lime — not agricultural lime) in another 4.5 litres of cold water in a non-metallic container. Mix the two together. Stir well.

Test with an old nail. Dip it in the mixture for 30 seconds. If it comes out blue you need more lime, or more mixing to dissolve the lime. Or dip in a steel knife: if it is red-streaked you need more lime too. Don't use it till you have corrected the problem because you may burn your plants. Use the mixture within an hour, stirring occasionally. Use it with any spraying equipment but have some water around to wash out the nozzles and stop clogging.

Bordeaux paste. This is useful for collar rot and tree wounds. Dissolve 60 g of copper sulphate in two litres of water then add 120 g of brickies' lime also mixed in two litres of water. A tablespoon of powdered skim milk can be added to increase its effectiveness.

Seaweed spray. For those who don't want to use a 'strong' organic fungicide regularly, seaweed, horsetail and casuarina sprays can be used instead. They need to be used more often however, and preferably throughout the year. To make a seaweed spray first wash the salt from the seaweed, and cover it with water for three weeks. Strain off as much water as you need, dilute till it's the colour of weak tea, and spray. This will strengthen plants' resistance to many infections.

Esquisetum or horsetail tea. This is a preventive, not a cure. Spray it regularly on trees that are prone to curly leaf or leaf spot or brown rot or spray your roses every two weeks to inhibit black spot. The spray does have a very limited effectiveness however when symptoms appear, and if you cut off all infected leaves you may stop the infection spreading. It should be sprayed fortnightly.

Boil 20 g of esquisetum leaves — most health food stores have them — with a litre of water for half an hour, then strain and spray. Use at the rate of one litre to cover an area ten metres by ten metres for the first spray, then dilute with 50 percent more water for subsequent sprays. You won't get better control spraying more heavily — it is a homeopathic spray.

Baking soda spray. This is not strictly organic. Use it instead of Bordeaux if you must — it is slightly easier to make — but never use it on foliage. Mix 100 g of washing soda with 50 g of soft soap. Dilute with two litres of water.

Traps. Aphids can be trapped. Try scattering yellow painted boards throughout your growing area, liberally painted with glue or any other sticky substance. A large number of aphids should be caught. An easier trap involves yellow pans of shallow water. The aphids are attracted by the colour and drown. A little oil can be added to discourage mosquitoes and make the trap more effective.

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found in back issues of EARTH GARDEN.**

clover now and brassica seedlings about a month later. The flowering white clover will help keep cabbage white butterflies and cabbage moths from your seedlings, and if the clover is kept well slashed between your plants it will help add nitrogen and mulch. Don't grow the clover right up to the seedlings till they are half grown: keep a handsized space clear for each seedling and use the cut clover as mulch.

Any interplanting will help keep off caterpillars. The moths and butterflies identify brassica bushes by their shape, and other shapes confuse them. Always grow brassicas with a maze of other crops. Beans, corn and radish are excellent and you'll have far fewer pests.

I try to plant caulies, Brussels spouts, broccoli and so on, in the first week of January. I only plant long maturing caulies, crowding them together so the stronger stunt the weaker. I still have a couple from last year poking through the borage and sweet peas. With luck we'll have cauliflower for Christmas — almost a year old to the day.

Sources of supply

Several people have written in the past month asking for sources of supply for unusual fruits and vegetable seed. The following are a few places to get unusual plants.

Badgers Keep, off North St, Chewton Victoria, phone (054) 723338. Direct sales only. A magnificent range of new and ancient apple varieties, including the very early Joaneting and Lady Sudley if you want apples in December. Both are soft apples that must be eaten sweet from the tree. They also have an enormous range of herbs, and many rare, old fashioned and useful plants. An appointment is necessary before visiting. Write if you have a particular enquiry.

Honeysuckle Cottage, Lot 35 Bowen Mountain Rd, Bowen Mountain via Grosevale, New South Wales, phone (045) 721345. Specialises in rare herbs and roses, fragrant and useful plants. Direct sales and mail order. (Be warned: plants are often out of stock and some I have received have been diseased, but the range of herbs and roses is one of the best in Australia).

Diggers Mail Order Garden, 105 Latrobe Parade, Dromana, Victoria, 3936, phone (059) 871519. Sell a wide range of seed, many imported, often unusual varieties. Direct sales and mail order.

New Gippsland Seed Farm. PO Box 1, Sylvan, Victoria, 3795. An excellent range of mail order seeds (we buy a lot of our seeds there — they are reliable and the varieties are well chosen and described in their catalogue).

Central Seeds. RSD Lockwood, Victoria, 3551. Native and exotic tree seeds.

The Fragrant Garden, Portsmouth Rd, Erina, New South Wales, phone (043) 677322. Stock an enormous range of fragrant herbs and perennials, medical, culinary and dye herbs. Direct sale and mail order.

Ross Roses, St Andrew's Terrace, Willunga, South Australia, phone (085) 56 2555. An enormous range of roses including over 400 old fashioned and hip-producing varieties. Direct sales and mail order.

Doyles River Rainforest Nursery, Doyles River, via Wingham, New South Wales, phone (065) 50 4596. Specialises in rainforest plants, other native plants and evergreen fruit varieties with many rare and useful varieties. Direct sales and mail order.

Eden non-hybrid seeds. MS 316, Gympie, Queensland, 4570. Mail order sales of legume and tree seeds as well as vegetables and herbs. This is a family venture which buys seed and is also interested in resellers.

Flora McDonald Native Plants. 1 Balcome Court, Croydon, Victoria, phone (03) 725 7526. Specialises in unusual native plants, many not stocked or propagated anywhere else. Direct sales only.

King Herb Seeds. PO Box 14, Glenbrook, New South Wales, 2773. Extensive range of herb, flower, Oriental and gourmet vegetable, and dried flower seeds.

Nindethana Seed Service, RMB 939, Woogenilup, Western Australia, phone (098) 541066. An extremely large collection of native seeds, including rare varieties. Direct sales and mail order.

Yamina Rare Plants, 25 Moores Rd, Monbulk, Victoria, phone (03) 7566335. An enormous range of rare plants. Direct sales and mail order.

Australian Herb Society. PO Box 110, Mapleton, Queensland, 4560. The Society has a members' seed bank, a quarterly magazine and extensive tape lending library.

Archers Fruit Trees, Main Rd, Granchester, QLD, phone (075) 655100. A remarkable range of rare fruits, vegetables and other plants. Direct sales and mail order.

Minara Pty Ltd. PO Box 98, Spit Junction, New South Wales, phone (02) 969 2289. A wide range of Chinese vegetable seeds. Mail order only.

Phoenix Seeds Association Ltd. PO Box 9, Stanley, Tasmania, phone (004) 581105. A non-profit association to counteract the disappearance of non hybrid and specialty seeds. A wide range of unusual seeds. Mail order. Be warned: some seeds from previous orders haven't come true to type and germination has sometimes been poor. But the catalogue is fascinating and there are plants that you can't get anywhere else. *Phoenix should be supported.*

Seed Saver's Network. PO Box 24, Nimbin, New South Wales, 2480. Not a seed supplier, but a vital seed bank and networking group saving 'heirloom' and rare seed varieties before hybrids are all that's left. Seed swapping among SSN 1000 plus members is popular.

Thompson & Morgen. Write for a catalogue to PO Box 50, Jannali, New South Wales, though many garden centres stock their seeds. Many unusual varieties.

Ornamental corn

Ray Sioux of Mt Garnet in Queensland wrote recently wanting ornamental corn. You can buy the seeds for this plant from the New Gippsland Seed Farm — see above.

It should be grown like ordinary corn: very well fed and mulched and watered for a good crop. (Corn is one of the hungriest plants you can grow). Down here where frosts can kill corn crops sown after Christmas I have found that mulching the plants while the soil is still warm so that only the leaves are showing, that is, about three feet deep in mulch — will keep the corn growing through winter. A couple of winters ago I harvested corn near spring. It wasn't particularly sweet or tender, but it was corn, and a damn sight better than any available at any time in the shops.

Be careful with ornamental corn — it can cross pollinate with ordinary corn. If you want to keep seed from it for next year grow it well away from other crops or tie paper bags over the heads as soon as they start to 'tassel'. For either seed or ornamental use let the cobs mature till the tassels are fully dry and crumble away and the paper around each cob is dryish. Ordinary corn would be woody by now but ornamental corn needs the extra time to get fully ripe.

I last grew ornamental corn 11 years ago and I still have cobs, all in different patterns and colours. My favourite is one that alternates yellow and red and white. They made wonderful gifts. The crop was enormous so we had quite a residue: cobs that hadn't been properly pollinated so each row wasn't full, a few cobs nibbled by bush rats and so on. We fed these to the chooks and they loved it. I also grow some for cornmeal for polenta. This was about three years after the harvest. Ornamental corn keeps well, and the reddish variety is actually that preferred by the Mexican Indians for their corn meal and tacos. If you don't want to pick corn when it's ready — ornamental or not — just bend the plant over so it protects the cobs from rain and mildew.

Please: if anyone's writing for advice, would you mind enclosing a stamped self addressed envelope? We're on a low budget, and stamps add up.

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~ Organic farms in Spain. Part I. ~

by Robin Jean

Braidwood, New South Wales.

RECENTLY our family decided to go to Spain for a few weeks. We had saved enough money over the previous nine years (since our last holiday) for airfares to somewhere in the low season. We were feeling in need of a break. We could have travelled in Australia but thought that we'd probably have to buy a new car if we did and the airfares were certainly cheaper than that!

While we were away we divided our time between town and country, and when in the country we visited both traditional farming areas and organic farms. Traditional Spanish farming does still exist and is consistent with some organic methods. The Spanish use oxen, horses, mules and donkeys as beasts of burden and where animals are housed inside, manure is spread back on the pasture and gardens. Crop rotation is practised and the Spanish generally grow a variety of produce rather than a monoculture.

Interspersed with the traditional are the organic farms, operated mostly by young people.

Mario and Mariana Hilgers' farm, half way between Granada and Motril in the south of Spain, is basically a subsistence operation. The Hilgers are German and, having endured two world wars in their home country, have moved south to a warmer physical and cooler political climate. They have a five hectare property (large for Spain!) on the outskirts of a small village.

Perched high atop rocks and born of the rock itself, the house that Mario and Mariana built faces the sea to the south-east. Behind it rise the massive snow covered mountains of the Sierra Nevada. The entire five hectares are steep rocky gullies and pinnacles. It is the sort of place that in Australia would be National Park or unused wasteland.

Despite this the Hilgers grow much of their own food and have some to spare to barter in the local (Granada or Motril) health food shops for those items they do not or are unable to grow. Mariana also teaches deaf people in nearby Motril and Mario paints. They also have Mario's pension to keep the wolf from the door.

We were shown the garden area by Alberto Garcia. He works on the farm, runs courses for interested people, translates relevant material (Permaculture books and Fukuoka's *One Straw Revolution*) and writes for Spain's alternative magazine, *Integral* . Beginning with herbs and flowers at the top, the rocky track winds down over bedrock through vegetable gardens to the vines and olives on the terraces below. In suitable niches are fruit trees and vines. In the garden we met Paulino, the man from the village who comes once a week to do the odd jobs. He was weeding the

(From left) Mariana and Mario Hilgers and Alberto Garcia outside the Hilgers' house at Motril in Spain.

strawberries when we met him.

Afterwards we sat in the house talking in three languages (English, German and Spanish) about the situation in both Spain and Australia and eating the nicest food we had in all of Spain: home grown organic and home cooked.

Agriculturally, at first glance, the property seems very poor. Terracing however yields fertile soil as well as rocks. The rocks form the walls and the soil from around the rocks, the garden. In addition they grow plants in pockets of compost set on the unmovable bedrock.

Since this farm is located in the southern, almost tropical, part of Spain a great variety of crops can be grown. There are mangoes, bananas and custard apples along with the olives, broad beans, tomatoes and so on. Carob and fig trees are grown directly on the rocks themselves.

Water constraints

Mario and Mariana bought this farm because of the availability of water. The annual rainfall is low, at around 400 mm per year, but there is a spring whose water they share with others. Ten years ago, however, the spring began to silt up. Goats eating the vegetation higher up the slope, replanting with exotic fire prone species (in this case Australian eucalypts and American pines) and the subsequent fires opened the way for erosion and the virtual death of the spring.

This year there is only the well. Having had nine months without rain they are running out of water for any use other than in the house. Plans are now afoot to pump water from the river (200 m below and 700 m away), but this is costly and permission must be gained from local authorities. The project is one for the entire village: all will share the cost and all will benefit. They will use the old spring water distribution network which is still there though not currently used.

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Part owner of CABES, Juan Serna.

The village closeby means labour is handy for mending the terraces, building new ones, tilling the ground: in fact, all the work Mario (now in his eighties) and Mariana are unable to do. That is all except the electrical system. Despite Spain's location in Western Europe in 1988 many rural communities are without electricity. This includes grid, solar, wind or petrol/diesel generated electricity. Although in the north there are many small hydro plants, in the drier centre and south people use oil lamps, candles, gas cookers, have no refrigeration and, believe it or not, use a ripple board for washing. You can indeed buy new concrete ripple board plus tub combinations very similar to the concrete tubs available here in Australia.

The Hilgers use gas refrigeration and cooking but have a Savonius rotor for lighting and pumping water. Theirs, the first in the area, was imported from Switzerland. They are now manufactured in Motril supplying other farms in the area. There is also an oil press in the village. The Hilgers retain some of the olives for salting, and take the rest to the village where they are weighed and pressed for oil. The cost is ten percent of the oil produced.

In the southern part of Spain there is much to distress the environmentally-conscious person. Wherever possible there is broad scale farming of olives, vines, grain and vegetables such as beans. Rough terraces are also being bulldozed across the near vertical slopes and almonds planted. This is not for commercial gain from the plants but because the provincial government has decreed that any land not in agricultural use will revert to government ownership! On the south-eastern coastline the scene has been turned into some sort of moonscape with a myriad of plastic greenhouses. Soil is imported, increasingly briny water is pumped and tomatoes and beans are grown. It is incongruous that charming little white villages still exist in the midst of plastic and rubbish. Mario and Mariana's farm and village are an oasis among this desolation and potential desolation.

Commercial organic producers

At the other end of the production scale is CABES (Compania de Agricultura de la Serena). CABES is a group of five people who have formed a company to grow organic food for profit. They believe in the environmental principles governing this type of production but also believe that they can make a living at it. Living so close to the lucrative West German and French markets and with soil which is relatively untainted they'll probably be a success too. They have a three year getting-into-production plan. We visited them in their second year.

We met Juan Serna (one of the group of five) in a noisy bar in Madrid. Unable to hear but one word in five and with two bored and hungry kids (it was eight at night and we hadn't yet eaten) we were agreed on one thing: yes, we'd love to visit the CABES farm, what about next Saturday? Agreed.

The farm is a rented 40 hectare patch of rich river flats with a good water supply for irrigation. It has not been used for horticulture before and there are no other horticultural enterprises nearby so the danger of chemical residues in the soil and of drift from neighbouring properties is minimal. The land is basically flat with one small rocky outcrop, which is the site for a future 300-hen chook run, using varieties of hens from all over Spain.

A combination of labour saving devices and manual methods is used. The soil is cultivated and levelled using tractor-drawn equipment. Planting of seedlings is done from the back of a tractor but seeds are put in by hand. The produce is harvested and packed by hand. Unemployment is high in rural Spain and the business is looked on with favour by the local labour force, and with interest by local farmers. If it is a success there'll be a few more organic farms springing up in the area. Juan, a former local Member of Parliament and the public relations and marketing expert in the group, has excellent contacts with the local farmers. With him and his family we visited some of these farms, tasting their home-made cheeses, discovering that in Spain it's legitimate to tie the feet of the sheep you're shearing (after taking off the belly wool of course) and talking about Australia ("No, we don't milk the kangaroos!").

Each member of CABES spends one day a week working on the farm. Since it is not yet in full production they also have other jobs to provide income in the early years. In the group most members have a specific interest and expertise: plants, animals, machinery, public relations and marketing.

The farm is being set up gradually. The first step is improvement of the soil. They are using green manure (lupins and lentils), sheep manure from the local sheds and worm castings. They are branching out into egg production too. They grow their own organic feed for the hens, and will have poultry manure to add to their soil as well. At the same time they are, in conjunction with local official bodies, experimenting with fertiliser, crop type and time of planting to determine where the maximum yield is likely to occur.

At the moment they are growing seven types of vegetables: spinach, broccoli, lettuce, leeks, cauliflower, onions and water cress. They plan to expand into lentils, wheat, corn, tomatoes, beans, potatoes, capsicums, eggplant, cucumbers and melons. They also harvest from the 40 hectares some wild plants including asparagus, thistles (used in salads and stews) and a truffle-like fungus.

Marketing is direct into a large Spanish department store chain, with a view to the French and West German markets in the future when production increases. Expansion is also part of the future. There are further hectares available for rent and possibilities (using some Australian grasses) of development of meat production as well.

Both of these and other properties we visited have inspired us to improve our set-up at home. Our land has more potential than we had realised before our Spanish trip. With the Spanish examples beside us we are making big changes and will pass on our experiences in future issues of Earth Garden.

A savonius rotor on top of a water tank, with the Sierra Nevada mountain range in the background.

Saving Seed - Our Heritage

"About 15 years ago Henry Kissinger together with a few multinationals implemented three strategies. The first was to get food onto the commodity market so people could buy futures and tie up specific food through the stock exchange. That worked fine. Then they decided that if they could patent seeds they could own the seeds and people would have to pay for use, and that worked fine. Most governments in the Western world have seed patents. Then that enabled them to take other steps such as approved lists so that it was impossible to sell other seeds. They've wiped out 85 percent of the domestic seed of Europe that people had kept in their gardens. A hundred percent of some seeds like soya beans, 70 to 90 percent of all the important food crops are patents belonging to only four or five multinationals. Lastly, and that last move has happened very quietly, they not only bought up nearly all seed companies but they've bought up most horticultural services. So you can say that only four or five companies in the world control the world's food."

- Bill Mollison (from a spot on 2BOB FM, Taree).

by Cheryl Meyer

Mitchell's Island, New South Wales.

FOR THOSE of us who've grown up in the past 30 or 40 years in urban or suburban environments a tomato comes in three different sizes — small tiny tims, medium egg or Italian tomatoes, and big red salad tomatoes. What a staggering revelation then to encounter the Seed Savers Network, Australia's only open-pollinated seed exchange, whose store of tomato seeds currently stands at 77 different varieties! "We've probably got four or five hundred varieties of vegetable seeds," says Director Michel Fanton. "And we keep on getting them all the time."

Not long ago seed catalogues fairly burst with varieties of peas and beans. Today's hybrid seed varieties, genetically concocted to be suitable more for the supermarket shelf than for the home vegetable garden, are not only limited but are becoming less and less satisfactory to many gardeners.

Two years ago a group of people, including Frenchman Michel Fanton, decided to form the Seed Saver's Network, based in Nimbin. "We thought it was long overdue to start telling gardeners to do full-cycle gardening, to save their seeds as well as grow their vegetables," says Michel.

Saving seed is an essential part of traditional gardening, taking full advantage of Nature's self preservation systems. While the vegetables are growing the best plants are selected by the gardener to keep for seed. Thus he or she ensures a continuing supply of food in future years while improving the hardiness of the variety. After several generations of this kind of management a plant emerges that is not only resistant to many kinds of disease and insect attack but is well adapted to its particular climate and locality.

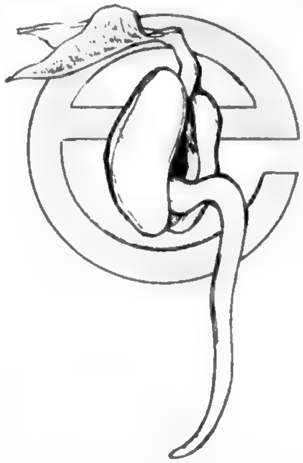
There are many backyard gardeners across Australia who have been growing vegetables in this way for years. Some obtained seed from interesting origins as far away as Ireland, Hungary and South Africa. Some seeds came to Australia in the pockets of soldiers during World War II. Some 'heirloom' varieties have been grown by one family for over a hundred years.

But the important thing, as Michel emphasises, is that the seeds be planted and the variety continued. "Most of our members are older gardeners. Next year they may no longer be there. The 94-year-old lady who has a wonderful lettuce, maybe a brown Romain, might be dead next year."

The Seed Saver's Network was established with several important aims: foremost, to preserve Australia's plant heritage by contacting gardeners who have kept seeds of older varieties for their knowledge, and to ensure the further propagation of these varieties through the membership. The Network has actually recovered many varieties of seeds believed to have been extinct. They also send seeds to experienced gardeners in Third World countries such as India, Nepal, Botswana and Nicaragua with instructions on saving the seed to assist in augmenting the subsistence diet of the people of these countries. Seed Savers sponsors gardens in inner-city schools as a fundamental educational activity for children, and, through their bi-annual newsletter, keeps their members informed of the Plants Variety Rights legislation which threatens the free exchange of seeds.

While Michel acknowledges that PVR legislation has created some restrictions, "We should rather focus on what can be done now, which is to look after vegetable varieties, and fruit as well, which grow around us. We know that if you don't catch the seed before it rains, dry it, and put it in a jar, the plant might die next year."

In Taree, New South Wales recently, Michel took part in a 12 day Permaculture Design course held at the Manning Project Centre. The Taree area, Michel believes, is a perfect place to 'prospect' for old seed varieties. "The Mid-North Coast is quite a large bio-region. It's flat and therefore easy for gardening, and it has been settled for a long time. I've had a look around over fences at local backyards and this is the exact type of place where you find treasures."



The logo of the Seed Savers Network.

Michel cautions that uncovering old and heirloom varieties is not always easy. "It doesn't take just a few days," he says. Farmers and gardeners may not be aware that the beans they've been growing since Grandma's days are anything special. "It's not special for them if they've had a particular seed for the past 50 years. They'd say, 'No, I haven't got anything special but I've got an old potato — I've always had it.'"

Michel suggests that local newspapers are a valuable tool in prospecting. "As soon as you find a person with a special local plant you put a picture of him or her with whatever they've got in the paper and you tell the story. Then it starts stirring." He also recommends church groups, country women's associations, and doctors' surgeries as good places to hunt down local gardeners. So there may be some sleuthing involved but Michel believes a little work can pay off. "It's going to be rewarding for sure."

Once the seed is collected Michel sees little point in keeping it stored. "You can have a seed bank in a fridge but the seeds should be in the ground," he stresses. "You've got to be generous with the seed. You start multiplying and then you've got many seeds, you make sure to give it to gardeners who know what they are doing."

The Seed Savers Network provides information and instruction on the proper procedure to collect and store seeds. Different plants require different handling. Some plants are insect-pollinated, some wind-pollinated, and some are self-pollinating. Understanding the reproductive process of particular plants is essential in maintaining a 'clean' variety. "If you grow two varieties (of a plant) near each other which are insect-pollinated, a bee or an insect may cross-pollinate the plants and you may lose some special characteristics this way. If you've got a maize growing next to a sweet corn for example, they are wind pollinated, and the sweet corn is going to be tough next year. It's important to keep them clean and we teach this. When you start a seed-saving group we give you all the information you need. It's not taboo knowledge."

Not just any plant however can be grown for seed. Michel does not recommend anyone attempting to save seed from hybrid varieties. "Some hybrids are sterile and the fertile hybrids are not very interesting," he says. If one tried to replant the seed from a hybrid the next generation may turn out to be disappointing. "It's going to throw back to its parents and you'd have to grow them for many years to clean them up. Often you won't find the quality. It is better to find a variety that has been in the area for a long time."

Once a seed saving group is started in an area Michel advises that records are kept with names and addresses of gardeners who are growing particular varieties. Then it is known "who's got what". The network acts as a contact point where gardeners can link with other gardeners and exchange seeds, and also as a seed retrieval station. "If a gardener can no longer look after the seeds, they go to the seed bank and say, "Have them back because I'm going overseas", or "I can't have a garden anymore because I've got three dogs". So they give back their seeds and then you find someone else who will plant them. You want at least 10 to 20 people for each variety."

The Seed Saver's Network has supported the establishment of many such groups throughout Australia. It is a national network that operates on the annual membership fees of around $10. Members exchange seeds freely for the cost of a postage stamp. Information on seed varieties and the lists of members offering seeds appears in the newsletter which is published in the spring and autumn of each year. Michel says there are currently 1000 members in the Network.

"We do not evaluate the impact (of the idea of saving seed) by the amount of membership we receive only; there are a large number of people thinking about it. It's only a matter of time until full-cycle gardening becomes every gardener's cup of tea."

The advantages of saving seed are far-reaching. Growing open-pollinated local varieties of foods is clearly an important and sensible practice for every home gardener.

Seed Savers Network, Post Office Box 24, Nimbin, New South Wales, 2480.

Seed companies which sell open-pollinated varieties include: Phoenix Seeds, Post Office Box 9, Stanley, Tasmania, 7331 and Eden Seeds, 21a Sandy Creek Road, Gympie, Queensland, 4570.

The above article is reprinted with the kind permission of the Mid-north Coast Bio-regional Newsletter.

In EARTH GARDEN REVIEWS this month the new permaculture manual from Bill Mollison is reviewed. The book is available from the Seed Savers Network.

Plastic coats for earth walls

by Dr Robert Rich

Healesville, Victoria.

WALK into a mudbrick or rammed earth house. Almost certainly, it will feel pleasant, although you mightn't immediately be able to say why. There are two reasons: good acoustics, and control of humidity. Sound is scattered and absorbed by the heavy, rough surfaced, non-resonating walls. I know a woman who built her chambermusic hall from mudbricks for this reason.

Humidity control is just as important for comfort, though less obvious. Air conditioning systems use high technology to return moisture to filtered air, but even so, people often complain of dry noses and throats, and may have breathing difficulties. Many homes with electric heating can also have the same problem of over-dry air.

Then there are the houses that are too humid, with toadstools on the bathroom walls. Warm moist air from areas like the kitchen cools down in unheated areas, dumping condensation on the walls.

Neither of these problems arises in earth walled houses. As long as the walls can 'breathe', they release moisture into over-dry air, and soak it out of the air when it's too humid. It so happens that the walls keep humidity within the range people find most comfortable. Naturally, this effect disappears if inside wall surfaces are sealed with a waterproof coating such as paint. I've been in several painted mudbrick houses, and as far as humidity control is concerned, they might as well be made of fired bricks or concrete.

Some earth walls need protection from the weather. Persistent wind driven rain or sand will erode them over time. But this is not usual: most earth walls can withstand everything Nature throws at them. You can try a rough equivalent of the National Building Technology Centre's Accelerated Erosion Test: you MUST protect the wall from the weather if a hose with good water pressure played on the one spot drills through a hole within a minute or so. No need to be exacting with the conditions of this 'test', because it is good building practice to protect a wall whether it 'passes' or 'fails'.

A wide roof overhang is a good start. However, unless you completely shade out your windows, you'll still have rain beating on your walls when there is a strong wind blowing. So, it is essential to have a good surface.

The simplest protection for mudbricks is to thoroughly wet down the wall, then scrub it hard with a stiff brush, broom, wet cloth or gloved hand to smooth out minor irregularities without eliminating the typical mudbrick appearance. This is all that's needed for good quality clay.

Rammed earth made from a suitable mix is amazingly weather resistant. I've had a partly completed wall survive two winters. It has moss growing on the top, but there is no damage, and it rings like sandstone when hit.

Just the same, it is good building practice to protect your wall with a coat of render whether it needs it or not. A mudbrick wall made from reactive clay (one which shrinks and expands with changes in moisture content) needs a flexible coat. My preference is one part of fresh cow manure mixed with four parts of lime, thinned to a paint-like consistency, and painted onto the wetted wall. For rammed earth, and non-reactive mudbricks, I prefer whitewash (a suitable mix of cement and lime). Both of these are cheap, can be made very attractive, and last well. If a hard knock chips off a bit of render, you can fix it in five minutes' work.

Stronger protection may be indicated in a cyclone-prone area, or where frequent sandstorms occur. This is the only kind of situation where I'd be inclined to use plastic paint.

Personally, I find the idea of plastic paint on earth walls incongruous. Earth as a building material is of low environmental impact (unless you transport it around, and use high-tech techniques). It is of the land, and helps the house become part of the landscape. Its use is as old as building by humans. Plastic paint is a high cost, high impact (being made from petrochemicals) part of the human attack on our planet. Its usual attraction is that less maintenance will be required in the future. I guess the choice is yours: work at some job which is just a means of earning money, to buy high cost paint less often — or use lower cost materials to do the job maybe twice as frequently. To my mind, rendering your own house is meaningful work, part of living. Unless you are one of the lucky few, working at a job is a necessary interruption to living.

But all right. You still want to use a plastic coat on your earth walls. Here are the facts. In 1979, a CSIRO colleague sent me off to see a young couple who had a mudbrick house. The outside was painted with a plastic latex paint, tinted a nice ochre colour. The paint work was five years old, and had no signs of weather damage.

For the reasons just stated, I was not all that interested, but mentioned it as an option when writing about renders. I did a bit of research in response to a reader's letter, and talked to several 'experts'. They all said that plastic latex is no good for exterior use (and never mind that it worked!). There are a number of products developed for masonry which work well with earth walls, and the ordinary exterior grade acrylic paint also stays on very well. The following are the available options.

Ramset Rainaway is a clear substance you can spray on any vertical surface. It allows the wall to 'breathe', yet a stream of water will run down it in discrete drops as if the wall was oily. The example I saw was only a few months old, but had the appearance of something that should last.

Two coats are applied. Coverage is up to three square metres per litre for a dense surface, maybe 1.5 square metres per litre for a porous surface like rammed earth. Recommended retail price is $133.50 per 20 litres.

Bristol Masonry block filler is a thick white acrylic substance which provides a durable waterproof surface. Again two coats are recommended. Price is $74 per 20 litres.

Dulux Masonry Clear is the standard exterior grade acrylic paint, but has no dyes in it. Dulux say it resists ultraviolet light well, but the addition of pigments will certainly make it more durable. **Dulux Weathershield** is the white version. Both can be tinted in any paint store, and there are about 800 colours available. Two full strength coats are recommended. On a porous surface a wetted down coat might be applied first, then a full strength coat. A third coat will probably be needed unless the second one looks good. Price is $39.50 per four litres.

Wattyl Solaguard is a similar paint. You can buy it white, or one of 64 tints. Recommended price is $40 per four litres.

A word about colour is necessary. Inside walls ought to be as close to white as aesthetically acceptable. This ensures best use of both daylight and artificial light, and makes rooms look more spacious. Outside wall surfaces should be a colour which keeps the house cool during hot weather, warm during cool weather, and safe during bushfires. This is white.

Well, there it is. I hope you decide against nasty plastic coating for lovely earth walls, but good luck and have fun in any case.

Let There Be Light. Part II.

In Earth Garden 62 Julia began her story about developing her self-sufficient lifestyle with her husband, Al, on a block of land at Oratia, in northern New Zealand. In part II Julia finishes by telling us of their involvement in small business enterprises.

by Julia Todd Forbes

Oratia, New Zealand.

FOR years Al had been thinking about, and building, experimental apparatus towards a new type of generator for bringing electricity into our home. By 1979, he had a general idea of what he wanted to do, and was convinced it would work if only he had the chance to get stuck in and make working models, perfecting any changes necessary as he went along.

So we decided to sell the paper clip business, machine, know-how and good will, now that it was booming, to get the time, money and space to go full speed ahead on Al's generator. The paper clips are still being made and sold in increasing numbers by a young couple up in Whangaparaoa who've kept up the standards and say they "love the business", and Al began to devote more energy and time to the generator project. Of course, he couldn't really work full time on it because we still had our labour intensive lifestyle to keep up: he was still hauling water and cutting wood and, though we cut down on their numbers a bit, the animals had to be cared for.

So it wasn't until the 15th of January, 1984, that with great pomp and ceremony we flicked the switch that turned on the seven fluorescent lights to illuminate our home. We joyfully retired the several kerosene lamps and three Aladdins that had bothered us with their smell, the oily deposit they coated the ceiling with and their fire-hazard potential.

Al calls his generator the Homebuilt Dynamo because, with the exception of a small amount of lathe work on two of its parts, the entire generator can be built using only the tools commonly found in a well-equipped home workshop. There is no welding or soldering, no custom-made castings to farm out — and Al did it all with hand tools including an old-fashioned hand-operated drill press. Actually, most people could do it both easier and quicker than he did because they would probably have power tools where Al had to rely on elbow grease.

Al adapted his Homebuilt Dynamo so that it could be worked with pedal power, but this meant using only about a tenth of its rated output of 1000 watts. Using it with power from a windmill, pelton or cross-flow water turbine, or steam, its full potential could be used, with direct drive possible in some cases.

The generator itself is beautiful in the way anything is a work of art which is meticulously made with all its parts functional, and all of the best new material chosen for highest and complementary performance. This was not a machine made of scrounged bits and pieces, using parts of discarded old-style generators and adapting them to a new use. Al's Dynamo is an entirely new reworking of an old idea which was impractical when it was first conceived (described in the 9th Edition of the Encyclopaedia Britannica over a hundred years ago). In fact, it would not be possible at all without the recent advent of permanent ceramic magnets, which far out-perform the old type of metal 'horseshoe' magnets in general use over the years. Neither is it the result of hit or miss intuitive experiments by a keen but untrained tinkerer. Years ago, before we left Canada, Al completed a course on electronics (which he finished with high marks, I might add!) and, although he never followed it up by working in the field, he has kept up with developments so that his achievement in producing his Homebuilt Dynamo was not done with lucky guesswork.

We wanted to tell people about the generator so they could go and build one themselves. We decided to write it all up in a book with oodles of photos plus working drawings so that Al's Homebuilt Dynamo could be produced by anyone who cared to follow his picture diary of how he did it.

Writing the book, and taking photographs of every step was possible because the whole thing was assembled with machine screws, and dismantling the completed machine presented no problem. In fact, this characteristic of the dynamo makes it a wonderful teaching tool.

However, Al is very fussy about his photography, and extra parts — duplicates of the ones he'd completed — had to be made over again so that he could photograph each step of production and assembly. And writing it all up seemed harder than producing it in the first place. It took us another two years before we had a manuscript fit to be taken to the printing trade. My part of the job was the actual writing: putting into reasonable and understandable English Al's shorthand notes. Of course, Al then had to check everything I'd written to be sure I'd not misinterpreted his notes and written nonsense.

We went into the business of self-publishing, which was full of hassles we'd not anticipated and took a great deal longer than we'd hoped. As the pages came back from the typesetter, we checked them for accuracy and typos — this was an especially long task when it came to getting the numbers and symbols right so that the dimensions would be correct and the formulas make sense. Some of the pages had to be taken back with corrections over and over again as the typesetters were unfamiliar with the technical signs and how to set fractions. I had plenty of time to work on the index while we corrected the proofs and it was just about a year from the time we went to the typesetters to the time we finally had a book in our hands.

Since we'd both put so much work into it, we were determined that only the best paper, reproduction process for the pictures, and stitched binding should be used and we are very proud of the end result — an excellent quality book not usually found in the self-published field.* Of course, it ended up costing a lot more that way and we unfortunately had to sell our property to pay for publishing costs but the main thing is that we don't owe any money on it and, eventually, we'll recoup our losses and be able to buy another property in the future if we want to.

We have great faith that even if it's a slow starter, the book is not going to go out of date and, as it becomes known (especially in sales to libraries) it will come into its own as a description of an entirely new and efficient type of generator. We're convinced that, especially in the scaled-up models as described in the Appendix, it will revolutionise the possibilities of alternative energy systems and make them available at a far lower cost than the systems currently in use for individuals and co-operative communities. We'll persevere.

**A review of Al and Julia's book, The Homebuilt Dynamo, appeared in EARTH GARDEN REVIEWS in EG 60.*

—Alan.

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AVAILABLE FROM: The Seed Savers Network, PO Box 24, Nimbin, NSW, 2480.
$58 (plus $5 postage) till Christmas, $70 thereafter. See review this issue of EG.

A visit to Passion Cottage (and Professor Bigbrain)

by John Wolfe

Morwell, Victoria.

RECENTLY, I heard on the grapevine that Professor Bigbrain (EG 27 and 28) had become somewhat unpopular with the authorities and had lost his post as Professor of Modern Economics at Wooloomooloo University. His last lecture, advocating the abolition of the Stock Exchange and return to the barter system was not received with acclaim, and pressures were applied which resulted in his removal.

It was whispered to me that Professor Bigbrain had withdrawn for a period of rest to his mountain retreat, and I decided to track him down for an interview. This was not easy. The first problem was to find out where he was actually hiding, and it seemed that the Professor had carefully covered his tracks. I travelled long distances to remote alternative communities, asking questions and wasting many dollars on free drinks for people who, as it turned out, knew nothing. But with the tenacity of Sherlock Holmes I persisted, and at last learned the approximate location of his mountain home.

The quest

Over primitive tracks and through rushing creeks I struggled; through bramble patches and wiregrass thickets I battled, toting a rucksack containing tent, sleeping-bag and food for three days. For anyone interested, my provisions were rice, dried fruit, nuts, powdered milk, soybeans, flour, salt and a packet of glucose tablets to keep up my strength. With a billycan for cooking, and a change of clothes in a plastic bag, everything fitted easily into a small, cheap rucksack.

The first night I camped high on the mountainside and Oh Boy, was it cold! I'll tell you what I did, in case you ever get caught in a similar place. I made a bed of gum-leaves to insulate me from the ground, then I warmed up a couple of rocks near the fire, wrapped them in a towel and took them to bed with me.

As I lay there, miles from anywhere, gazing at the

stars and listening to the mopokes, I wondered if my quest was worth the effort. It was apparent that Professor Bigbrain was trying to escape from interviewers, insurance salesmen, building inspectors and other pests. But I scented a story which could be sold to some magazine for money.

Next morning, to the refreshing calls of mountain birds, I breakfasted well on steamed rice with beans, spiced with a delicious mushroom I found growing near my camp. This was followed by *Compote de fruit* — prunes, apricots and pears, to be precise. Of course, as an old hand, I had soaked the dried fruit in a billy of water overnight. Finally, after a fragrant tea made from wild raspberry leaves, I felt ready for whatever the day might bring, and set off up the track whistling.

Late in the afternoon I was still walking, and just when I had decided that the man who gave me directions was a beer-swilling swindler, I came to a fork in the track. Sure enough, there was the hollow tree with the owl-face painted on it, just as my confidant had indicated after his fifth glass of Fosters. The words PASSION COTTAGE were painted on the tree, and an arrow pointed to a narrow footpad which wandered away into the scrub.

I contemplated the sign with some interest, wondering at its implications. Was the Professor some sort of sex maniac? Or did the words mean that the occupants of the cottage were accustomed to flying into sudden, fiery rages? On the other hand, perhaps the Professor had been converted to some odd religious cult. I made my way into the deep valley with some apprehension. It was growing cold, and storm clouds had appeared on the horizon. Soon I saw a comforting pillar of smoke rising from a small clearing in the bush ahead.

A mountain hideout

On a north-easterly slope, where it was sited to catch the winter sun, a small green cottage blended into the mountain landscape. On closer approach I saw that the walls and roof of the cottage were completely covered by creepers. Large green fruits of irregular shape hung from the vines in abundance. I coughed discreetly, and a startled, bespectacled face peered through the doorway. The eyes behind the spectacles swivelled in their sockets and brought me into focus. It was indeed Professor Bigbrain in person! I was bearding the lion in his den.

The great man stared at me suspiciously for a few moments, but then relaxed, perhaps reassured by my rucksack and peasant attire. "Not selling anything, I hope?"

"Just a wandering bard," I said.

The Professor gave the sigh of those who have suffered. "I suppose you'd better come in. How did you find me?" "With much difficulty," I assured him.

He waved me towards a cheerful fire, crackling in a stone and mud fireplace. "I'm a freelance journalist," I confessed, once I was safely installed in a log chair, sipping the Professor's mint tea. The rammed earth floor of the cabin was littered with sheets of paper.

"My latest pamphlet," explained the Professor in apology, gathering up the scattered sheets. "It's a *Do it Yourself* thing: *How to Start Your Own Bank - And Borrow Money From It* .

"Should be bestseller," I observed, getting out my notebook and pencil. "Why is it so dark in here?"

"It *has* been getting rather dark lately," admitted the Professor. "As you probably notice, we are surrounded by walls of verdant foliage."

"How did you build the place?"

"Mostly be accident. Being rather short of funds, and as er . . . unpleasant people were looking for me, I climbed into this magnificent valley with a shovel, handsaw and a roll of tie-wire."

"A lovely place," I agreed, "but very isolated. What on earth made you buy such an inaccessible piece of land?"

CHICKENS SMARTER THAN HUMANS!

"In all broadscale agriculture, which, sadly, is the most destructive influence on the face of the whole earth, the chicken becomes a parable, which as representative of a class of animals kept by man consumes a lot more of the labour of man in agriculture than it returns in necessary food . . . of every acre of every field of wheat, 70% goes, with the chicken as parable, to the chicken and 30% to the uses of mankind . . . most agriculture is devoted to the "chicken" . . . most tractors, most roads, most rural networks are built to service the chicken."

Extracted from The Best of Permaculture, a fascinating book of insight into working with nature . . .

"Permaculture is not gardening, it is a design. Permaculture is a skill that says where something goes, so that it functions in relation to other things. Every time you don't do that you are in trouble. Every input that is not automatically supplied you must supply. All unfulfilled needs are work and all work is satisfaction of unfulfilled needs. None of this is necessary if you have correctly placed every element in relation to its needs and outputs".

The concept of Permaculture describes a process that is essentially one of perennial and sustainable agriculture. The Best of Permaculture book is a brilliant overview of articles and works from the International Permaculture Journal and other Permaculture publications.

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The Professor's secrets

"Buy it?" queried the Professor. "I was so short of money I even had to borrow the shovel and the tie-wire! I got the saw for a dollar in a junk-shop." The Professor rubbed at his chin. "Buy it?" he repeated to himself, rocking pensively on his cushioned boulder. "First of all, I sank strong poles in the ground and made the frame of the cabin by wiring saplings to the poles (see EG 17). Then I walked out to town, scrounged a lot of polythene sheet, stuffed it into a chaff bag and carried it here on my back. The polythene for the walls was thin and light, but for the roof I used the heavy-gauge sheet they use as a dampcourse in building-foundations. Then I planted passionfruit vines, chokos and native creepers around the walls. By the time the poly sheet was torn by the wind, the vines had taken over."

"I get it!" I said with some relief. "Passionfruit! That's why you call the place *Passion Cottage* !"

"You're very perceptive," said the Professor. "You might have a good future as a journalist. The vines keep the weather out beautifully. I had some trouble at first with large birds like Currawongs landing on the roof, but now the polythene is completely covered by creepers, which protect it from damage. Come to think of it, that's why it's getting so dark in here. In a more accessible place you could use corrugated fibreglass or plastic sheets for the roof and keep the vines cut back to let in light. You could also use wire-mesh fencing on the walls for the creepers to climb on."

I heard a rustling noise in the wall and looked around nervously. "Any snakes in the area?"

"Some small creatures live in the walls," admitted the Professor, "such as frogs, lizards and little bats. My cabin is very popular with tiny birds like scrub wrens. The lizards take care of the insects." He smiled. "I understand that snakes don't like lizards."

"I hope so," I said.

"In any case," went on the Professor, "I really advocate this type of vine-building for use as a workshop or auxiliary shed."

"What about food. How do you survive?"

"The chokos have been a great standby," said the lean Professor. "And of course I have a vegie garden down at the creek. For greens, I use wild nettles. There's no shortage of them — they grow everywhere."

"Nettles! They must make painful eating!"

"Nonsense! Once you boil them up, the sting goes out of them. They taste just like spinach."

"You mean like in *Popeye* ?" I asked, flexing my arm muscles.

"That's right! Full of nourishment!"

"What about *Olive Oil* and *Sweet Pea* ?" It was a dangerous sally, but we journalists have to take risks sometimes. I sat with notebook and pencil poised.

"No need to bring that sort of thing into it," said the Professor in an annoyed tone. "Anyway, I'm only staying here till I finish my thesis. After that I'll be going . . . " He paused. ". . . away."

"Back to the Ivy-Covered Halls?"

The Professor muttered something about a "provincial lecture tour". It was the end of the interview.

I have promised the Professor not to reveal the location of his temporary home, except to say that it is somewhere in the Great Dividing Range that runs through Queensland, New South Wales and Victoria. The Professor kindly gave me the names of several creepers suitable for beautifying houses, sheds and fences, and for providing simple shelter.

Professor Bigbrain's creepers

Passionfruit — *var. Nelly Kelly.* This is actually two different plants. The variety Nelly Kelly is grafted to a wild stock and gives excellent crops of fruit, while shoots from the stock can be encouraged to form a huge, dense vine with beautiful flowers. The wild vine is more frost resistant than Nelly Kelly, but does not usually set fruit in cooler climates. You can buy a grafted Nelly Kelly at a nursery.

Chokos: Keep whole chokos in a sheltered place, for example on the kitchen shelf, till the shoots appear, then plant them out. Chokos like cool conditions and are frost sensitive.

Climbing beans: Plant varieties such as Purple King and Giant of Stuttgart beside the chokos. Apply plenty of compost and a mulch to keep the roots moist, then watch them grow!

Wonga vine *Pandorea pandorana.* A vigorous lush green native creeper. Frost and drought resistant and an excellent fire retardant.

Coral pea *Hardenbergia rubicunda.* A vigorous frost-resistant native with attractive red-purple flowers. Put seeds in boiling water for 30 seconds, then transfer to cold water and let them soak for a few days. When the seeds swell up they can be planted out. Keep watered till established.

Native sarsaparilla *Hardenbergia violaceae.* A hardy native creeper with attractive mauve flowers, which will succeed in poor soil and withstand dry conditions. Same seed treatment as for *H. rubicunda.*

Ananda Mela Festival of Bliss

"A celebration of universal awakening" is the theme of this year's Ananda Mela Festival of Bliss. In its eighth year, the festival will be held at Ananda-palli community in Stanthorpe, Queensland, from January 10-15. The festival will feature workshops such as: evolution, bio-regions, spirituality, 1990s depression, Maori culture, music, theatre, art and quality evening entertainment, combined with complete childcare and yummy food, very low cost and warm family feeling. Guest artists like Alan Posselt, Australia's foremost sitarist, and the Invisible Opera Company of Tibet create a nice balance for the five days. **For more information and a leaflet, write to Ananda Mela, PO Box 3, Severnlea, Qld, 4351, or phone (076) 835 207, (07) 844 9261, (047) 823 911, (02) 810 6641 or (03) 386 5640.**

Some rare disorders associated with building

by Carolyn Burgess

Armidale, New South Wales.

BUILDING is a pastime fraught with hazards. Many learned articles and leaflets have been written warning us to wear hard hats, lift properly and wear safety glasses and most of us are familiar with the more basic safety rules.

I have found that there are several disorders which are neglected by the safety experts. Some are not serious, but all are at least annoying. You may know them well and will nod with the knowledge of experience, or this may serve to alert you to the perils that lurk.

Dirty Hand Reflex

Many alternative health workers will agree, (and if they don't, they should) that there is a link from the hands to the nose. It appears to operate this way. As soon as both hands are covered in muck the nose begins to itch, often unbearably. The degree of the itch seems to relate directly to the a. spread (that is, up your arms as well) and b. the nastiness (chicken muck versus mudbrick) of the matter on your hands.

One possible theory about this reflex is that it is a left over, like the appendix, from more primitive times when our ancestors were just emerging from the sea and not quite used to breathing yet. A sort of "don't grovel in the mud at the river bottom — get up and breathe" reflex.

Scaffolder's Foot

Another of these left-overs is scaffolder's foot. It is an often intense ache in the sole of the foot as it tries, in vain, to grip the scaffolding through three pairs of socks and a pair of hobnail boots. It often shows up only when you actually try to move. The head and the hands are doing fine but the feet are terrified! Needless to say this is probably a throw back to our ape-like ancestry.

While the previous conditions are scientifically interesting the next four are more significant to the safety expert as they involve actual injury to the worker.

Cement Mixer's Hand

It has been proven that cement and lime will penetrate anything you can wear, from hand-cream and rubber gloves to leather gauntlets, and slowly dissolve your hands.

This is a nasty complaint and happens almost before you are aware of it. Frequent washing of your hands, thick cream and (for the ladies) telling him to mix his own liberated cement, are the only known cures.

Ladder Worker's Knee

This is easy to pick. The sufferer walks with the knee half bent and in a semi-shuffle. Examination of the knees will reveal a deep dint below each knee cap. This is caused by kneeling on the rungs for an extended period. The solution is . . . don't, or pad your knees.

The next two complaints are the most potentially nasty and should be guarded against by all thinking workers.

Forty Four Gallon Groin

This is a complaint of the ligaments and muscles . . . to say nothing of the seamstress. It is caused by those of small stature, who are working on top of 44 gallon drums, finding the oil drum they use as a step up has been nicked (again) so Fred (Tom, Bert) can sit on it, in the shade, while he has smoko. Which he is doing right now, and will have your's too if you don't hurry up. You can hear him talking to the wife about "nice fresh scones". So you endeavour to slip down in one go. That nasty tearing sound and feeling heralds an attack of 44 gallon groin.

Brick Carrier's Nipple

This is a complaint usually confined to women, though some of the more 'Norm-esq' males may find it a problem. It is extremely painful, causing much uttering of profane oaths and gnashing of teeth. It can lead to the secondary complaint of Brick Carrier's Foot.

The usual method of contracting BCN is to have two bricks on your out-stretched arm and to place, forcefully, a third brick on top of the brick nearest the body, thus sandwiching the nipple. The same principle is used in the veterinary practice of camel-bricking. As stated above this can lead to the secondary complaint of BCF. Tight bindings, heavy shirts and caution is all that can be recommended.

I hope this has opened your eyes and minds of the dangers you may have hitherto overlooked. Remember to approach each task you undertake with the safety aspect in mind. Just pretend you have a pocket size version of your mother always with you. Because if she wouldn't have let you do it, chances are you shouldn't.

Crotalarias - useful legumes

by David King

Rock Valley, New South Wales.

THE CROTALARIA genus of herbs and shrubs is found in the warmer parts of the world. There are 15 native species and some of the exotic species have become naturalised. They are members of the pea family (Papilionaceae), and the leaves are either simple or divided into three leaflets. The flowers are terminal (on the top, outside the foliage), coloured yellow, green or a mixture sometimes with brown or purple markings. The seeds are in large inflated pods, which as they dry and loosen, turn the pods into rattles. One of the common names for Crotalarias is 'rattle pod'. Crotalarias will grow in the tropics, subtropics and in warmer temperate areas.

Because they are short lived shrubs they are useful as infill and micro-climate plants in new orchard plantings. As legumes they fix atmospheric nitrogen to be released as they are pruned or culled. The plants are actually improved by pruning, giving better shape and flower display as well as mulch from the prunings. Seeds need to be treated for ease of germination, also it is said, cuttings can be made, but I haven't tried this. If it is grown from fresh seed, not fully dry, it can be sown without treatment. Crotalarias will grow in any soil as long as it's not water logged.

The local Crotalaria in my area is a one metre shrub called *Crotalaria zambelli*. The best know Australian species is *C. laburnifolia*, or bird flower. It grows wild in southern Queensland and has greenish yellow flowers.

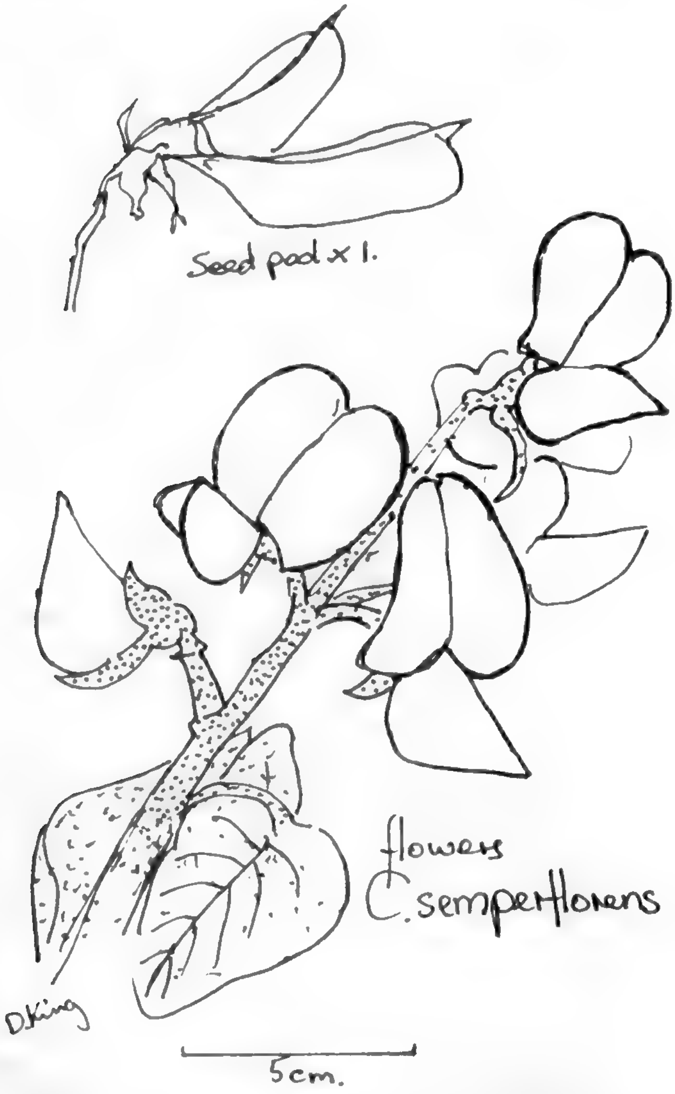
It grows to about 1.5 metres and several in a row can be used as a support for creepers or vines. *C. cunninghamii* is similar except it tolerates drier inland conditions. Another arid land Crotalaria is *C. mitchelli*, while in the northern tropics a common species is ***C. retusa***. There are two important exotic types, *C. juncea*, or Sunhemp, which is widely grown in India and can be used for cordage, paper production or as green manure. This species won't produce seed in cooler areas.

The other important exotic is my favourite, known botanically as *C. semperflorens*. As the name suggests it has large, spectacular flowers, bright yellow in upright racemes. Its home is also India, with large leaves, silver/grey green on the undersides.

It grows to over three metres tall within two years and seems to only survive about four or five years, but gives bulk and biomass to plantings in their early years. The flowers appear in winter and the seed pods in spring also look decorative.

Crotalarias don't need inoculation but nodulate freely, collecting lots of nitrogen. Mine are often attacked by leaf-eating caterpillars but as I only grow them for biomass, this isn't a problem as caterpillar manure is also a good soil improver.

Like many legume species there is a toxicity problem with this genus and mammals — horses can be particularly affected if they eat the plants. I recommend you use these plants on your homestead in the orchard, or as ornamental plantings, as part of a succession to large slower growing species.



The flowers and seed pods of Crotalaria semperflorens.

Treading on egg shells, or . . . Dealing with building inspectors

by Graham Hardy

South Townsville, Queensland.

I READ with sadness the letter from Betty Fisher of South Melbourne, about the building problems faced by some people in the Orbost Shire (in the June-July issue of Earth Garden) and no doubt there are lots of other people in other areas who could tell similar stories.

I do not profess to be an expert on the following topic but, having had some previous experience, I feel that what I know could be of some help to people wishing to build on their land. There are a few facts to keep in mind all the time when dealing with local authorities. The three pertinent ones for this subject are:

1. Local authorities are run and governed by rules, regulations, and (dare I say it!) politics, despite their howls of protest to the contrary.
2. Given this, it will be recognised that a building inspector will have fairly strict guidelines, about what is, and is not allowable in a dwelling, and the procedure to be followed before it can be built.
3. How flexible he can be about interpreting these rules, on an individual 'one off' type of construction, (for example, mud-brick) depends on the attitude of the aldermen or councillors towards these types of construction, and, sadly, towards the people who wish to build them. There are a lot of others too, but space will not permit, and these are the most pertinent.

So, what do you do when you want to start the business of building a house?

1. Decide on what sort of house you want to build. Decide clearly on the size, layout and type of construction. Get some graph paper and draw a floor plan and a few elevations. Be sure you know exactly what you want.
2. Before you buy your land, go to the local council administration centre and ask for the senior building inspector, or whichever of his deputies is available. Discuss the sketches you have drawn with him.

Ask him about —

- •Types of construction.
- •Council attitudes towards these (He will probably tell you things he would never put in writing).
- •Cyclonic area code if applicable.
- •Owner builder requirements of council.
- •Temporary accommodation standards and regulations while your dwelling is under construction.

Some of the more enlightened and progressive councils already have information sheets printed and freely available to owner builders. They save a lot of trouble, and thousands of hours of building inspectors' time. These people are usually hopelessly under-staffed, usually about half strength, and are never paid overtime. This could help explain why some of them, at times, are something less than friendly.

3. Write down the name of the officer you spoke to and all the information he gave you. You would be amazed at how much you totally forget after you leave the office.

It is a good idea to write down your questions on a large sheet of paper, and leave room for the answers opposite. It saves a lot of time!

At this point you can get a pretty fair idea of how much trouble you can expect with the council. Building inspectors do not usually mince their words. Their message comes through loud and clear, and you should be able to draw one of the following conclusions:

1. You are wasting your time, and the council's, by proceeding in that direction, or all is well.
2. If you do proceed you will need some well qualified engineering or architectural documentation to back you up. Believe me, no local authority will do *any* research or *anything* that does not conform to the known and accepted.

It is likely that you will have to supply data compiled by a *practising* architect or engineer, and preferably a local one. Do not expect any local authority to accept a design on the say-so of a book written by someone half way around the world, or by the fact that this exact same design was accepted by a neighbouring council. You *must* supply data from a practising professional who is insured against design failure. This is why there is such sensitivity with local authorities about departing from the norm. One of the fastest growing industries in Australia is suing local authorities for just about anything.

Let us now assume you decide to go ahead, and you

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do, in fact, own your land. The first thing you do is draw up a set of plans and specifications, to the scale/s and requirements of the council's by-laws.

Note: Some councils may accept less, but a properly drawn and dimensioned drawing will meet with a more favourable response from the city architect or town planner. If you have not had experience in this area, it is best to have them done professionally. They usually cost around $200 but this can vary significantly.

Approval for a house built in stages

Another reason to have them drawn professionally is that the dwelling may have to be built in stages, because you simply can't afford to do the lot in one go. These stages must be correctly identified, and designed accordingly: no job for an amateur. If it is correctly built in stages you also have the advantage of being able to use the completed stages legally while work is being done on the rest.

If this procedure is *not* followed, you *may not* live in *any part* of the house until it is fully complete and the final inspection has taken place! No amount of pleading, reasoning or just crying will alter this. It is the law, and no council or inspector can alter it. Even with this procedure, you will probably find the inspectors will place constraints on the use of the finished parts.

2. Submit your plans and specifications along with your building application form. This is best done personally. Ask for the person you spoke to last time, and if time permits, go briefly over the plans with them. This is not always possible but if it can be done it builds up a personal relationship with that inspector. If you have inspectors 'on side' from the outset, they can be an enormous help to the owner builder, with a wealth of helpful tips and advice that only a life time in the industry can give. They can also be formidable foes if they think you are trying to deceive them, and they have the law on their side.

3. Wait for your plans to be approved before you even dig a hole. If your building type is fairly standard you could take a gamble at this stage and buy some materials.

4. Follow the protocol as outlined by the inspector. He may tell you he wants to inspect the foundations before you pour the concrete. He means just that. He does not mean after all, or even some of it has been poured. He is perfectly justified in telling you to rip it up and do it again, or prosecuting you for doing it. Likewise, he has the right to tell you to remove and redo any substandard work.

5. Do not change plan in mid-construction. So often, as any builder will tell you, people get a bright idea when they see things going together. Owner builders are no different, often worse. If you really must do things differently ask the inspector. No matter how trivial you may regard it, he may not hold the same view.

6. No matter how good your house looks, do not move in until after the final inspection. To do so will almost certainly lead to prosecution.

7. Remember the golden rule, 'Ask before you act'. Don't assume you can do as you like on your own land. This is not the case! You don't have the freedom that so many Australians blissfully believe they do have.

There seem to be a lot of people out there being put through hell because they don't know certain basic rules, and worse still, are not being informed by the local authorities concerned. The first they know about having done wrong, is when some official slaps a summons on them.

Even more sadly as I pointed out previously, so many people think that because they have bought a few acres of bush, miles from anywhere, they are free from the rules and regulations of the 'rat race'. Not so. Sadly, this great country of ours falls short of the mark when one looks at the different types of discrimination that abound. We must have some rules but why not make those we have, flexible enough to allow a little compassion to get through occasionally.

Perhaps the good councillors of the Orbost Shire could think about that one!

THE GREAT TASMANIAN FOREST WALK

New Year's Eve to 5th February 1989

This summer The Wilderness Society is having a walk from the north coast to the southern tip of Tasmania to celebrate the forests and educate ourselves about their importance and unique ecology.

EXPERIENCE: **•Wild rivers •Spectacular rainforest •Rugged mountain ranges •Tallest flowering plants on Earth •Breathtaking wilderness •Unique wildlife.**

The five week walk is split into five sections (although you can join anytime you like) and there will be special events along the way: bush dances, rock concerts, ecology walks etc. For more information and registration forms, contact: **The Wilderness Society (The Walk), 130 Davey St, Hobart, Tasmania, 7000.**

Backyard astronomy in Australia

1989 overview of planets visible to the naked eye

by Brian Keatz*

Bowraville, New South Wales.

IN THIS age our 'knowledge' of astronomy tends to come from the television. We 'know' more about black holes and the more sensational aspects that appeal to our imagination than the reality that is visible to our unaided eyes and from our own backyards. Without a conscious act of will on our part, life becomes like the Leunig cartoon of watching the sunset on TV while it is occurring outside. We read, hear and see things secondhand, without the direct experience.

The likes of black holes are still at the hypothesis stage, are valid as such, and stretch our minds in an endeavour to grasp a possible reality. What we see on Earth is a direct experience, still far from being understood, and a constant source of stimulation for our thoughts, meditations and sense of wonder.

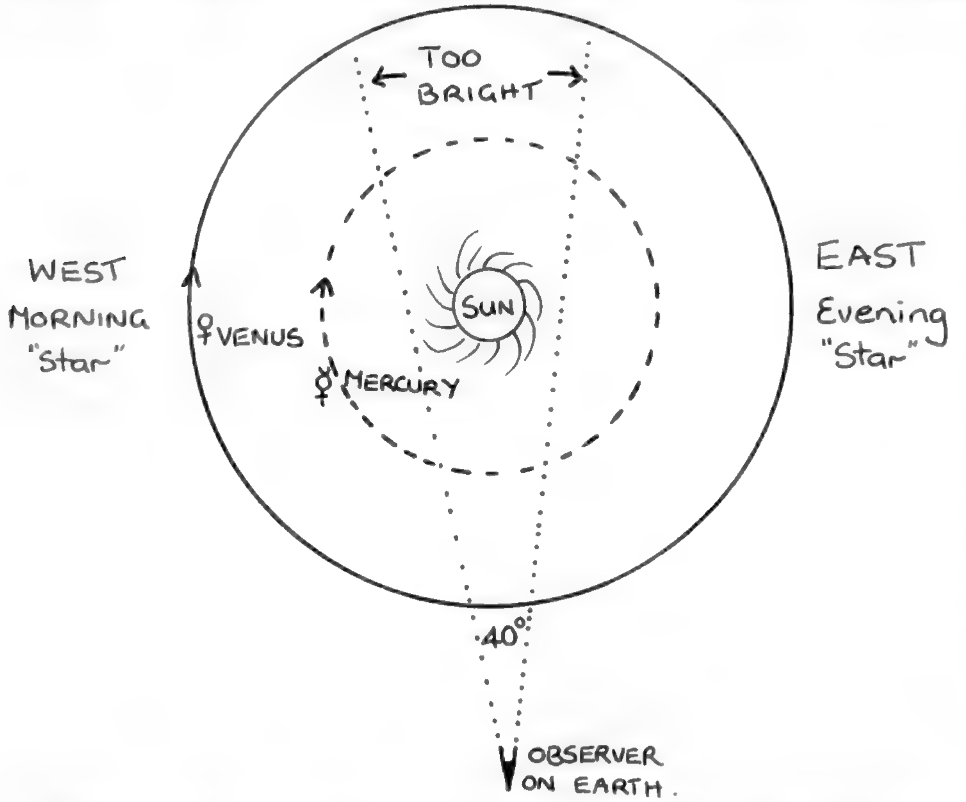
We are familiar with the phases of the moon, but little realise its other rhythms, of which several are quite discernible by observation. We tend to think that we need a telescope to observe the planets but there is so much we can experience of them without one. Only Uranus, Neptune and Pluto are not visible to the naked (unaided) eye. The others provide us with an unending drama in the universe, changing directions, positions, pace, colour and brilliance. Every night is so different and a rich, enlivening experience, taking us into the depths of the Cosmos.

Mercury

Mercury is difficult to see at the best of times and is potentially visible for only 18 hours in a year when it is at least 20° away from the sun. It is a challenge to spot it which makes it all the more pleasing if you do find it. The two best times to see it will be around the 11th of March (in the dawn sky) and the end of August (evening sky). When Mercury and Venus are west of the sun, they rise before it and become 'morning stars'. When east of the sun, they set after it and become 'evening stars'.

Venus

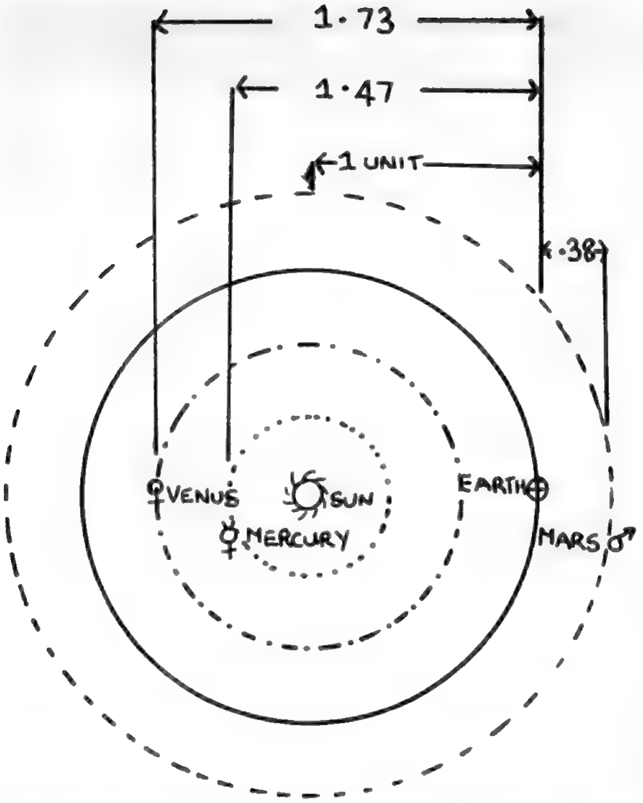
Venus keeps a relatively low profile this year after putting in two dazzling performances last year. There are two parts of her orbit at which peak brilliance is attained, one during the period as a morning star, and one as an evening star. Venus starts 1989 as a morning star for two weeks and then disappears behind the sun for five months, reappearing in mid-June as an evening star. From there she slowly distances herself from the sun, getting brighter all the while. In December, when already drawing back towards the sun, she builds up to a grand finale at the close of the year, dominating the evening sky. The Venus influence will be weakest at superior conjunction, when farthest away from the Earth, on April 5th.



Planets are not visible in daylight or when they are within 20° either side of the sun (40°) span, because there is too much light to view them.

Mars

Mars starts 1989 retreating from the Earth, with its reddish glow slowly fading after having had its closest



At times, Mars can be the closest planet to Earth. Distances are shown in astronomical units (the average distance from the Earth to the sun is 1 AU). The distances for Mercury and Venus are their maximum distances from Earth, while the minimum distance for Mars is shown.

perigee in 15 years on the 28th September 1988. At perigee Mars can be the closest planet to Earth. Perigee is an astronomical term used to denote when a planet is at its closest approach to Earth. Apogee is when it is farthest away.

Mars disappears behind the sun at the end of July and reappears in the morning sky in December. Conjunction is on the 30th September. Peak descension is reached at the end of March after which it will be ascending for the rest of the year. Mars forces will be relatively mild this year as it is moving away from the Earth in a two year cycle. Peak descension is when the sun, moon or planets traverse in a low arc across the sky. The sun is at peak descension at the winter solstice. Peak ascension, for the sun, would be at the summer solstice.

Jupiter

Jupiter begins the year still in retrograde motion and near perigee. Its closeness to Earth is offset somewhat by being in a descending period (Southern Hemisphere only). Peak descension is at the end of July. Jupiter's sidereal period, and hence its ascending/descending period, is close to 12 years. The ascending period will start in August and go on for the next six years. Jupiter forces will start to get stronger, especially around times of opposition to the sun (December 28th) and when reenforced by being in an air sign. Jupiter force is weakest around the 9th June when in conjunction with the sun. Jupiter remains for approximately one year in each constellation and is now in Taurus. Taurus is very distinctive with the bright red star Aldebaran and the famous seven sisters (Pleiades cluster).

Saturn has been riding high for the past few years and has only just reached peak ascension (November/December 1988). Last year it moved into Sagittarius, a warmth sign.

Sagittarius is discernible by being next to Scorpio, which actually resembles an easily distinguishable Scorpion, at the top intersect point of the Milky Way and the Zodiac. (The bottom intersect point is between Taurus and Gemini). Saturn, too, influences warmth and this property was accentuated by it being in peak ascension. All this added up to a very strong influence on the weather, especially in the Southern Hemisphere where it partly explains the overall milder winter experienced in 1988. That winter also found Saturn at perigee where it peaked its influence for the year. On average, Saturn remains for 2.5 years in each sign and we will remain in its warmth influence for the remainder of the year, with a peak in July, when it is in opposition to the sun.

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It will be descending for the next 14.5 years.

•The constellations mentioned are as defined by the International Astronomical Union and not the tropical signs of astrology. The two do not correlate and are 25° apart. Saturn is described as being in Sagittarius. This can be physically observed as being so, whereas the tropical Zodiac does not pertain to the observable reality. This is not meant to pass a judgement on the astrological signs.

As observed from the Southern Hemisphere, over the course of a year, the planets proceed in a clockwise direction through the Zodiac (from west to east). Seen on a daily basis the planets, sun and moon rise in the east and set in the west, the phenomena created by the rotation of the Earth on its axis. To orientate yourself to the Zodiac or planetary bodies, when in the Southern Hemisphere, you need to face north with the risings (of planets and constellations) on your right and the settings on your left. In the Northern Hemisphere you would have to face south to see the arc of the Zodiac. Sun, moon and planets all travel within the zodiacal belt, hence its importance.

The New South Wales Astronomical Society puts out a very good annual Ephemeris (showing the positions of heavenly bodies at different times) for anyone interested in further investigation.

**Brian Keatz shares a small biodynamic/permaculture farm with Susan Pearson near Bowraville on the mid-north coast of New South Wales. Combining interests in naked eye astronomy and the plant world, they produce the Astro Calendars of the Antipodes—see advertisement on page 44.*

In future issues we hope to bring you information from Brian on lunar/planetary rhythms and planting.

* * *

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Down Wallaby Creek

by Jackie French

Dancing with Ben Hall

MY GRANDMOTHER is conservative. She regards *Reader's Digest* as radical and still assumes the highway between Sydney and Canberra is the trek of her youth, to be faced with damask napkins of ham sandwiches (white bread and yellow mustard), thermoses of tea and slabs of fruit cake.

My mother would write to her gleefully in the 60s with tales of our family life, how I'd been bashed again in a demonstration, how she was suing the Minister for Justice for Defamation and upending the Queensland prison system. My grandmother would write back enquiring how my violin practice was going — she did hope my mother was keeping me up to it.

My grandmother is radical in only one area. She regards the bushranger Ben Hall as a hero. This is a family tradition. Our family has a personal pride in Ben Hall. He danced with my great grandmother.

This was over a hundred years ago, of course, on the family property out from Goulburn. My great great grandfather bred horses, with a touch of Arab in them. Ben Hall put emphasis on horse flesh — partly out of a need for a quick getaway, also because in those days there was a good deal of bravado about the speed of your horse. One local bushranger took pride in conducting two holdups a day with the greatest possible distance between them. He kept a diary of the times and distances between his robberies. He'd ask his victims to authenticate them, and if they had the time, perhaps, as a kindly gesture and to show they held no malice, could they possibly write to the newspaper confirming them?

Possibly Ben Hall was after horses. Possibly other loot. There was a ball that night. My grandmother's grandmother loved music, and loved feeding people: dray loads of supplies up from Sydney every six months. There was a long cold stone storeroom that smelt of the honey always dripping through muslin from the wax into jars, and a slightly fermented jammy fragrance from the rows of preserved fruit from the orchard.

Her husband was a magistrate. A cold man says my grandmother, very upright and respectable. What wealth there was in that part of the colony would have been there that night when the bushrangers arrived. They came through the door and stood there. They held pistols. They were dressed for riding, not dancing. My great great grandmother laughed, went to meet them, and suggested that, as they had come would they care to join them?

It was then that Ben Hall danced with my great grandmother. She was only a girl, maybe 12 years old. Of all the women in the room, said my grandmother a hundred years later, he chose her to dance with.

She said he had the clearest eyes she ever saw. I suppose he danced with other women too. They danced the whole night, the guests and the bushrangers, and left the next morning. Nothing was said of the Arab horses. Of course, said my grandmother, everyone always enjoyed her grandmother's hospitality. My great grandmother married a man like her father, a school teacher of extreme uprightness and careful moustaches, descendant of an Archbishop of Canterbury, with a respectable headmaster's career in front of him. The Archbishop was often mentioned; *noblesse oblige* and setting an example to those less fortunate, with lesser manners, lesser heritage, who might (softy say it) have *convicts* in their ancestry.

A second cousin started burrowing into family history a few years ago. Turns out the upright magistrate (from a most respectable, very old English family, assured my grandmother), was transported early last century. He went to work for a grazier, broke in an unbreakable horse for a half share in it, rode it to win and collected on it. That was the start of his fortune — and his horse stud. He moved, carefully clouded his past, and even his obituary in the local paper assumes he was a gentleman born.

As for the Archbishop — a convict of the same name and a touch of learning landed in Australia and created a new background for himself too. It was his son who married my great grandmother. I can imagine the two old frauds at their children's weddings, happily believing that whatever their murky pasts their children were at last allying themselves with the gentry.

The marriage was unhappy, but lasted, as marriages did then, though she and my great grandfather often lived apart, on the pretext that it was better for her to live in Sydney for the children's education. She founded hospitals and organised a relief scheme in the influenza epidemic after World War One, when people died alone and isolated in country districts, and unmilked cows bellowed in paddocks. There's a plaque somewhere commemorating her work.

She loved birds too. My grandmother remembers the shocked face of the vicar as one flew through the window to help itself from the afternoon tea table. The birds had their own bowl on the sideboard. Like her mother she loved feeding people, and in later years never ate herself unless at a festive table for someone else.

In her old age she took to flying, in the flimsy noise machines of those days. I can imagine her, grey hair under goggles, laughing through the clouds, still dancing with Ben Hall, as her female descendants have done ever since.

EARTH GARDEN REVIEWS

Edited by Sophie Masson

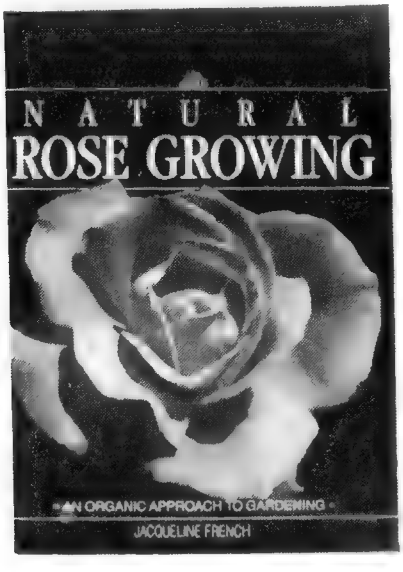
Natural Rose Growing by Jackie French, Angus and Robertson, $19.95, hardback.

EARTH Garden readers need no introduction to Jackie French. This is her second book, and is as readable, useful and interesting as all her previous work.

As she points out in her introduction to this attractive book, organic gardening doesn't only have to be about food plants ... "Hearts can starve as well as bodies/give us bread but give us roses" (Joan Baez). And the roses pictured in this book are enough to set all your senses salivating at once. Colours, shapes, sizes, styles, fragrances — there's a rose for everyone, for every imaginable situation. Roses have always had a powerful hold on our imaginations (just think of all the fairytales where they play an integral role). Coming from a wild wanderer, the gigantic rose family has scattered members all over the globe. And their wild ancestry also means that much of the 'high-tech' artillery that people unleash at them to keep them alive, is quite unnecessary.

Jackie French's book is full of useful information for those wishing to grow roses without chemical pesticides, unnatural pruning (although some is recommended), and too much heavy cosseting. There are chapters on choosing a rose, types of roses, cultivating, food for roses, water, natural disease control, natural pest control, pruning, rose companions, a rose calendar and a chapter, 'living with roses', on nice things you can make with roses — rose vinegar, crystallised roses, rose brandy, etc.

The book is beautifully illustrated with full-colour photographs.

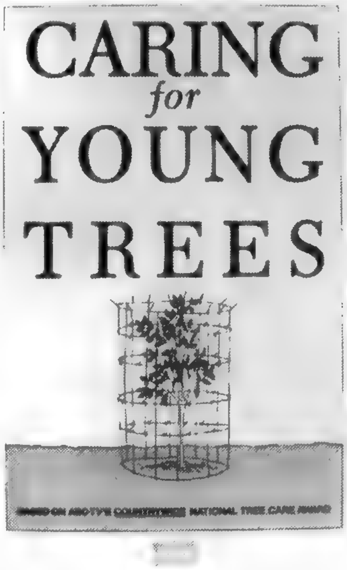


Caring for Young Trees, ABC books (through Angus and Robertson) $8.95, paperback.

THIS is a book based on the results of the ABC's 'Countrywide' National Tree Care Award. It's a collection of hints on the care of trees, contributed by a variety of people in a variety of localities in Australia.

It's divided into several sections, including ground preparation and planting, tree guards, moisture supply, and other areas. There's a tree table at the end, with brief notes on a variety of trees and their suitability for specific conditions.

This is an excellent reference book, with lots of good ideas, and is well worth keeping on your shelf or in your garden shed.



Growing Trees, for farms, parks and roadsides, by Julianne Venning, Lothian Books, $19.95, paperback.

THIS is a more detailed book than the previous one, and deals exhaustively with growing large numbers of trees for regeneration of farmland or other degraded areas. The information is clearly set out, beautifully arranged, clear, and concise. There is discussion on such things as planning, species selection, collection of seed, natural regeneration, direct seeding, seedlings, and maintenance. One of the interesting propositions that Dr Venning advances is that it is often more cost-effective to collect seeds from local species and plant those large-scale, rather than buy lots of seedlings for planting.

Natural regeneration is also a good way of encouraging trees to grow, she says, and she suggests several strategies for this. Dr Venning is a botanist and scientific officer and this background enables her to demonstrate the good sense of more trees on farms without being accused of being a 'greenie'. This is an informative, attractive book and a good buy.

PERMACULTURE: A Designer's Manual
by Bill Mollison
Available from The Seed Savers Network, PO Box 105, Nimbin, NSW, 2480, $58 (plus $5 postage) until Christmas ($70 after that).

PERMACULTURE, A Designers' Manual, is described as the definitive book on permaculture. It is 600 pages long and has 14 chapters of closely-typed information on subjects from patterns in Nature to strategies for a new global nation.

Bill Mollison's new book carries on from where Permaculture One and Two (100,000 copies sold in Australia) left off. Permaculture is a system where humans are required to work with Nature in order to benefit life in all its forms. Whether you live in arid lands, the humid tropics or a cool climate, there is relevant material for you. The book is in a limited hardbound edition and includes 130 colour photos and 450 line drawings.

The major theme of the book is understanding Nature: how to observe, and define new parameters for energy transactions. The book recommends increasing the biomass of the Earth with thick plantings, and conserving water in the landscape with earthworms, and further plantings.

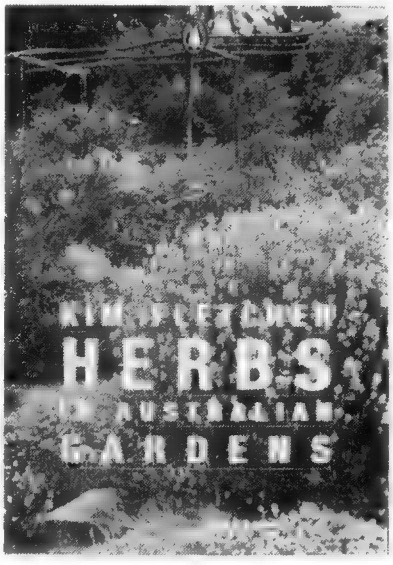
It has been named *A Designers' Manual* because it gives an overview for someone newly purchasing land or for someone wanting to rethink the layout and functions of their present systems. Crammed with examples from the Third World, where Bill Mollison has spent a large part of the past ten years, we can see from this book that the tide is changing — traditional agricultural systems have a lot to offer us here in the First World, when we want to take a more caring attitude to the Earth.

Coupled with this information are strategies using middle level technology appropriate for Australian people. Whether you are a guardian of large acreages or a tiny city plot there are fresh directions and designs for you. The book looks at the thoughtlessness of large scale agriculture, transport and settlement design and proposes new legal and financial systems and alternatives to present political systems.

At $58 (and $5 postage) until Christmas ($70 after that) this book is well worth investing in as a reference, or as a present. Available from The Seed Savers Network, PO Box 105, Nimbin, NSW, 2480.

Herbs in Australian Gardens,
by Kim Fletcher,
Penguin Books, $9.95, paperback.

THIS is a most attractive and useful little book. It tells you how to design a herb garden, to identify herbs, plant herb lawns, cultivate herbs and use them. It includes an A-Z of herbs, with ideas on how to use them for herbal remedies, natural pesticides, and companion plants. As well, there is a useful list of nationwide herb suppliers, and herbal gardens open to the public, a list of correspondence courses on herbal medicine, and further reading. There is also a seasonal calendar of tasks for the herb gardener. The herbs discussed in the book do not only include all the old favourites, but a host of unusual ones. It's written for Australian conditions, and so is most relevant. The only quibble I'd have is that Kim Fletcher says that my favourite leafy herb, coriander, has a 'somewhat unpleasant flavour'! Still, everyone's tastes are different.



Earthquakes and Buttercups,
by John Wolfe,
Green River Books, $9.00 (paperback) including postage, from John Wolfe, 12 Joy Street, Morwell, Vic, 3840.

THIS is an entertaining book from the pen of one of Earth Garden's popular contributors, John Wolfe. It's a novel about money and its futility and grandeur, a novel that rollicks its characters through a number of extraordinary adventures, culminating in a strange marooning on a tropical island and an unconfessed murder.

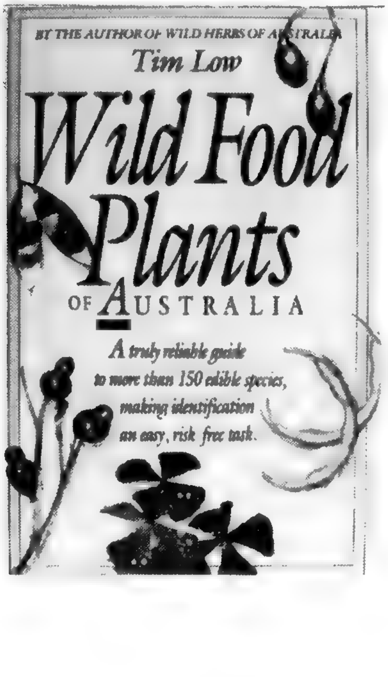
The narrator is a rouseabout who meets a character called Vic. Vic is always thinking of money, and how he can make it. In fact, his obsession leads him, the narrator and another friend into a mad criminal odyssey which will end in death for one of them. The characters are well-drawn and very 'earthy', the dialogue flows along at a great pace, as does the action. Place and description also play an important role. The tone is light, yet quite cynical at times, and the ending is not at all moralistic. In fact, one is left rather wondering!

And why the title, you ask? Well, because money, like all man-made things, but unlike natural things like earthquakes and buttercups, is definable by the use which it serves. It is only obsession which lifts it above this utilitarian function.

Wild Food Plants of Australia, by Tim Low, Angus and Robertson, $39.95, hardback.

THIS is an interesting book which details many of the thousands of food-plants to be found in the Australian bush. Author Tim Low is a biologist who has long been interested in wild food. His book is very readable and a reliable guide to finding and using wild food plants, as each plant is copiously described and photographed in full colour. As well as this guide, there are chapters on habitats, the plants as foods, the danger of poisoning, and traditional Aboriginal use of the plants. This chapter has an interesting and thoughtful, if brief, exploration of the benefits of a hunter-gathering lifestyle versus that of the subsistence farmer.

Tim Low's book is also that of a realist — for he is not advocating wholesale a return to 'bush foods'. Many, he pointed out, taste boring to our palates. Although the fruits, such as banksia blossoms, are real treats, he found that much of the staple foods are 'daunting' to Western tastes. Still, an appreciation of the vast larder of the bush, and the Aborigines' skill in using it, can become an integral part of all Australians' relationship with the land.


BY THE AUTHOR OF WILD HERBS OF AUSTRALIA
Tim Low
Wild Food Plants
OF AUSTRALIA
A truly reliable guide to more than 150 edible species, making identification an easy, risk free task.

Introduction to Donkeys, Donkey Society of Australia, (QLD Branch), available from "Underhill", PO Box 121, Kenilworth, Qld, 4579, $ 5.00 inc. postage.

HERE is a most useful and informative booklet put out by the Donkey Society. It's been compiled, as the foreword says, by those with 'a vast knowledge of these delightful animals, and, just as importantly, with a down to earth, commonsense approach'.

It's well-written, with lots of information on all kinds of subjects ranging from accommodation to ailments, feeding to parasites, training to companionship, and includes a set of donkey definitions (did you know, for example that the name for a group of donkeys is a 'pace'?) and a diagram of a donkey, complete with all the names of body parts. Colour is also discussed, and there is a sort of 'donkeys' charter' at the beginning, outlining the animals' needs — shelter, food, water, treatment of parasites, trimmed feet, inspection of teeth, treatment of ailments, basic training, as well as ongoing training, and companionship. Each of these needs is then enlarged on in the booklet. This is an invaluable aid for all those interested in donkeys.

The Essential Whole Earth Catalog Published by Doubleday, Available: Nova Book Co PO Box 546, Potts Point, NSW, 2011. $30 postpaid per copy.

WHEN I sat down to read 'The Essential Whole Earth Catalog', I had no idea how engrossing it would become. The 'Catalog' continues the 'Whole Earth' publishing tradition, started in 1968 by a guy who wanted to help his back-to-the-land friends discover the best suppliers for anything from windmills to beekeeping. The latest effort (after previous editions totalling over 2.5 million sales) is a massive encyclopedia of books (1086), magazines (297) and listings of mail order suppliers (579).

There's no point in saying the usual "this book covers everything from subject A (one extreme) to subject Z (the other extreme)" because the range of subjects is mind-boggling. As I flicked through the Catalog and marked pages with my fingers, for books or magazines I'd like to read, I ran out of fingers after a quarter of the book.

The sources are nearly all American — let's get that straight — (in fact the only 'Australian' references I noticed were to Bill Mollison and permaculture, and Professor Peter Singer's world-famous book 'Animal Liberation').

Surprisingly, its American-ness doesn't seem to matter. For instance, there is 'The Garden Seed Inventory' (reviewed on page 65 of the 'Catalog'), which lists 5,785 varieties of non-hybrid seeds available in the USA and Canada, and is published by the USA version of Australia's Seed Savers Network (called the Seed Savers Exchange — PO Box 70, Decorah, IA, 52101, USA). Now, that's an entry for people interested in 'heirloom' seed varieties, wherever they live.

Another entry that caught my eye in a random browse is the quarterly solar energy newsletter, 'The PV Network News' (Route 2, PO Box 274, Santa Fe, New Mexico, 87505). The newsletter features product reviews and field-proven tips as well as bibliographies and source lists — I'll let you know what it's like when I get my first copy.

The subjects covered in the Catalog reflect a wide range of human interests. If you want to take up a new hobby or learn a new skill, get a copy, close your eyes and stick your finger in — it's bound to land on something fascinating.

•continued on page 56

EARTH GARDEN UNCLASSIFIEDS

Unclassifieds are 24 cents per word, prepaid. The deadline for the next issue is 20 January.

HOME STONE FLOUR MILLS. Mill your own stone-ground wholemeal flour for cakes and bread at home with a Retsel Little Ark Stone Flour Mill. "Endorsed by the Housewives' Association". Write for catalogues to: Retsel Distributors, PO Box 712, Dandenong, 3175, enclosing three postage stamps, or telephone (03) 795 2725. Distributor inquiries welcome.

KING SEEDS—440 varieties—Herb, flower, Oriental and Gourmet vegetable, and dried flower seeds. Send $5.50 (P & H incl) for our colourful 1987-89 catalogue and 1988 supplement. Supplement only — $1.00 posted. Send SSAE for price list and order form. Wall charts on using herbs—$3.75 each plus $2.00 P & H per order. King Herb Seeds, PO Box 14, Glenbrook, 2773.

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MOORA-MOORA COMMUNITY SCHOOL. We are a small primary school situated on the top of beautiful Mt Toole-Be-Wong near Healesville in Victoria. We offer an alternative to the mainstream State education. Inspection or enquiries welcome (see article in this issue of EG). Phone Lesley Gunther on (059) 62 5932, or write to PO Box 521, Healesville, Victoria, 3777.

LA MANCHA RECIPES. 70 low-fat easily prepared vegetarian recipes. 42 pages. Send $4 to La Mancha Health Centre, Wollongbar, 2480.

SAVE AND DO IT THE QUICK BRICK WAY. Quick Paver, Quick Brick and Quick Form (in situ block maker) and Quick Ram. The fastest and easiest machines available in Australia. Send SAE for brochures to Quick Brick, PO Box 627 E, Gympie, QLD, 4570, or phone (071) 827 099 anytime. You can do it yourself the Quick Brick way.

AROMATHERAPY OILS. Top quality essential oils, large range. Send SASE to Thurlby Herb Farm, Post Office Box 70, Walpole, WA, 6398, for free mail order.

50 UNUSUAL HANDCRAFT IDEAS. Little outlay $10. Six natural cosmetic formulas $20. Brookecraft Box 157, Augusta, WA, 6290.

GOURD SEED. It's time to plant your gourd seeds now. We have all your gourd information in the latest edition of "The Gourdian" magazine. This includes growing, culture and drying of gourds. Magazine $3.50 includes postage and handling. Gourd and coloured corn seed $2.00 send SASE. J Van Tol, Naturally Different, 187 George Street, East Maitland, NSW, 2323. (049) 336 624.

INVERTERS 300 watts 12V DC to 240V AC 50HZ sine wave output. Lightweight. Drives computers, TVs, ideal for camping, etc. $350. Telephone (03) 598 5775.

ANGORA RABBIT FIBRE. Bagged and weighed $2/oz, two natural colours or white. 20 oz total. Phone Gill Rayner (056) 281 620.

BIO-DYNAMIC GARDENING AND BEE-KEEPING COURSES are run on a regular bi-monthly basis for beginners and those wanting to learn new skills for market gardening. Contact, Sandi Rutledge, Tapitallee Retreat and Education Centre, Illaroo Road, Tapitallee, Nowra, 2540. Phone (044) 460 138.

OUTLOOK ALTERNATIVES have moved to 52 Faithfull Street in Wangaratta. Outlook Alternatives specialise in central heating, solar hot water, solar electricity, wood-fired heaters, and energy-efficient house design. Phone (057) 21 9900.

OAT BRAN MUFFINS. Quick Mix Recipes. Proved to reduce high cholesterol. Healthy high fibre diet food. $8.00. Send money order to Joan Mackie, 42 Mayne Street, Gulgong, 2852.

SOLAR PANELS—DISCOUNT—TOP BRAND. For domestic use, 44 watt—$400, 58 watt—$520. Quantity discounts are also available. S & S, care of Ashgrove Post Office, QLD, 4060. Phone (07) 366 1059.

TRY ROACHEX, the organic reaction low toxic cockroach insecticide. An entirely different approach to the problem. So clean. So easy to use. Yet so much safer. Cockroaches never build a tolerance as they do to poisonous insecticides. Each carton lasts 12 months and contains 8 individual bait stations. Send $7.99 plus $2.95 P & H to Roachex, PO Box 172, Woodridge, QLD, 4114, or phone (07) 805 1826 for your order.

LAND LINES

LAND LINES are for people buying, selling, seeking or sharing houses and land. It is your responsibility to check all deals. We charge a rate of 24 cents per word (prepaid) for a listing of any desired length, plus $20 for a professionally-drawn illustration to go with your ad, taken from any old tatty photo you care to send us. All LAND LINES should include your name and address (phone number is optional). LAND LINES for the February issue should arrive (at PO Box 188 Moreland, 3058) by 20 January.

ELYSIAN FARM is situated on 240 acres about 20 kilometres north west of Lismore. Registered as a company, the farm is a legal multiple occupancy. There are dams, orchards, small dairy herd, chooks and a vegie garden. The shares for sale are worth $10,000 each. Contact Susan Conroy, 1189 Wynnum Road, Murarrie, Qld, 4172.

WANTED FOUR SINCERE HONEST AND RELIABLE MARRIED COUPLES. Interested in being foundation members of tiny commune on 80 acres mid north coast, New South Wales, no separate plots, no buying in, no illegal drugs, no boozing, no criminal activities, prefer 2 over 40 and under 60, other around 30 years young. Accommodation will be provided, SSAE, to St Bartolomeus, Lorne, NSW, 2439.

NORTHERN NEW SOUTH WALES. YOUNG COUPLE want small house/shed to rent. Northern New South Wales to Sunshine Coast preferred. Please write to Jiri and Zdena Cernega, 4 Alfred Road, North Fremantle, WA, 6159.

40 ACRES, NORTH OF GYMPIE. Timbered, partly fenced, semi-permanent creek, underground water available, 3 good dam sites — power, phone, school bus, at front door — views to valley at back of block. $40,000 ONO. Contact John Shaw, C/- 27 Mein Street, Scarborough, 4020, or 203 6774.

MURWILLUMBAH AREA. Shares in council-approved hamlet development. Approximately 12 acres each. Majority beautiful rainforest setting with absolute privacy assured, others partly cleared with magnificent views. All weather access. From $17,500. Write to: J Andersson, Palmview, 50 Poynton Street, Hughes, 2605 or phone (AH) (066) 793 333.

LAND — 2 ACRES RAINFOREST NEAR NIMBIN. Habitable roomy cabin. Plumbed spring water. House site cleared. 12 volt TV/cassette. 5KVA generator, chainsaw, mowers, building materials. $30,000 inclusive. Phone Chris (02) 953 5223.

CUMNOCK, NEW SOUTH WALES. 20 acres with cabin. Farmed organically, 16 years. $70,000. (063) 677 256.

TYAMOKARI — EARTH RENEWAL. We are establishing a permaculture-based community. Earth first, no compromise. 28 miles north of Lismore. 8 miles to schools, shops, workers and doers required, self-sufficiency aims. 215 acres, water, some housing. Walk-in deposit $2000. Full price $10,500. Phone Vivian Stott (066) 89 7275, Lot 2, Stoney Chute Road, Wadeville, 2480.

SE CORNER NEW SOUTH WALES. We have bush blocks for sale in the wilderness area between Eden and Bombala, some with creek. From $22,500. Phone (047) 84 1020 or write "Bush Blocks", Post Office Box C63, Clarence Street, Sydney, 2000.

NORTHERN QUEENSLAND. House for sale. Historic Mt Garnet, Northern Queensland. 2 bedroom, s/out. Being painted. All amenities. Three and a half hours drive to Cairns. $30,000 neg. Phone L Newnham, (070) 976683.

SAPOTE ORCHARD. NYMBOIDA NEAR GRAFTON. 300 subtropical and temperate irrigated mixed fruit tree collection. 25 acres timbered rainforest. Dam. River frontage. Good soil. Friendly community, includes caravan sheds. $49,000. Phone Danny Callaghan (066) 494 257, or 536 397.

ROSEBERRY CREEK, KYOGLE, NORTHERN NEW SOUTH WALES. Community established 1978. Ninth share in 513 acres, farm house, dairy, workshop, tools. Combines benefits of community lifestyle with own quiet, secluded house site and private or community access. Double creek frontage backing onto State forest. Tropical and citrus orchards, large hydro-power dam and underground pipeline to creek. Large pole frame with all materials on site to complete including seven sets french doors, large amount T & G flooring, chamfer boards and much more. School bus. $23,000. Phone Karen or Gary (066) 669 166. Write C/- Post Office, Whiporie, 2470.

NORTHERN NEW SOUTH WALES. One seventh share of a co-operatively owned 300 acre valley. This secluded land nestles in the NE foothills of Mount Warning. The share represents about 12 acres bordered by a permanent creek and Mount Warning National Park. It has two NE slopes suitable for a house site with rainforest trees in the gullies. Shareholders have use of and responsibility for the forests and creeks outside of personal holdings. Suit a lover of wildlife with a pioneering spirit. Access is by 4-wheel drive only, though the land is only 8 km from Murwillumbah. $25,000 negotiable. Phone or write to Ingrid Zammit, 2 Hopegood Crescent, Garran, ACT, 2605. (062) 813 897.

HYDROPONIC FARMING, NORTH OF MACKAY QUEENSLAND. 45 established hydroponic gravel beds, with computerised feed, 22,000 litre nutrient tank, presently growing lettuce, parsley, tomatoes and flowers. Old Queensland home with character on 3 1/2 acres, 40 minutes north of Mackay, 10 minutes to nearest Post Office and shops, school bus stop in front, 4 B/R A/C, W/W carpets, ceiling fans, solartinted windows, new wiring, renovated inside and out, concreted under, half enclosed with office and lockup garage. Two rainwater tanks and well, 6 x 3 m shed with lean-to carport, 3 x 3 m garden shed with kennel and fowl run. Well established fruit trees and BBQ area. Creek with permanent waterhole, bitumen road in front. Quiet area in sugar growing district, 6 miles from sea. $118,000. Phone R Sak, (079) 587 783.

BUNYA MOUNTAINS, QLD. High 10 acres overlooks National Park, creek with rainforest. Cabin has large living area, sleeping loft, verandahs, pot belly stove and solar lighting. Price $42,000. Also available to let, w/ends, holidays $145 PW. Phone (07) 371 6994, (07) 202 6590. Write: Alternatives, 37 Bangalla St, Toowong, Qld, 4066.

MID NORTH COAST, NEW SOUTH WALES — VIEW FREAKS' HEAVEN. On 24 acres. (One hour's drive from Coffs Harbour). Watch the sun rise over the ocean from your bed in this light and spacious house. Verandahs on 3 sides, lots of glass sliding doors opening onto 180° views. Open fire, polished floors, woodpanelling, electricity, solar HWS, and 15,000 gals water storage tanks. Secluded, but only 7 minutes from verandah to town of Bowraville, 20 minutes Nambucca Heads and beach. Completely frost free, good soils, lots of fruit and nut trees including tropicals, spring-fed dam. $120,000. Phone us to find out more (065) 647 489 or write to Robert Rosen, PO Box 93, Bowraville, 2449.

NORTH EAST VICTORIA. We are currently looking for land in north east Victoria, land contour is not important as long as some level and some arable. Power, phone, etc, not required. Reasonable 4 WD access okay. Some permanent water. Size variable, anything over 5 acres considered. Price approx $20,000. Phone Colin or Pam (02) 671 6998 anytime.

RAINFOREST RETREAT, END TAYLORS ARM VALLEY, MACKSVILLE, NSW. Third share, 43 acres, permanent river, water holes, 2 BR timber house, $35,000. Contact C Jones, 1-3 Warner St, Manunda, ph (070) 311438.

NORTHERN NEW SOUTH WALES - TOMEWIN. 10 minutes Murwillumbah. 1/15th share. Council-approved multiple occupancy. (1.5 ha or 5 acres), rainforest, dam, house site, 4 x 4 preferable, beautiful area. $25,000 ONO. Phone Charmaine (066) 84 9165.

WE ARE A FAMILY OF 5 living 14 km outside Cooktown, in north Queensland. We are looking for a person(s) to come and work with us for February, March, April (1989) — the wet season. We can provide separate one-roomed accommodation and food in return for work involving gardening, poultry, light building and repairs. Specifically, I wish to increase my nursery stock so persons interested in learning or helping with plant propogation might consider this. Only caring, responsible people need apply. We eat meat, believe in good health and a caring attitude, but are not fanatical in any way. Please write to: John Selman, PO Box 319, Cooktown, Queensland, 4871.

HIGHLANDS, VICTORIA. Coorabin Co-operative is a new community establishing in the granite hill country two hours north of Melbourne. Most of the 370 acres is bush with creeks, dams and abundant wildlife and adjoins the Switzerland Ranges Flora Reserve. A maximum of 18 households in three clusters is planned. Major interests of members include conservation, co-operation, sustainable human settlement and owner-building. We are now increasing membership from 9 to our limit of 18 shareholdings. Interested people are invited to write for information to Coorabin Co-operative, 7 Shirley Court, Boronia, 3155. Or phone David Farrow (03) 419 1788 (BH).

DAYLESFORD/GLENLYON, VICTORIA. 20 acres, secluded bush retreat situated in Wombat State Forest. Fronted on two sides by the Loddon River — permanent water, undulating country, abundant wildlife, beautiful views. Includes 24' X 12' wooden dwelling with extension begun, 1600 gallon water tank, small sheds, chook run. Rough road access — needs to be improved. $32,000 ONO. Contact Andrew or Gerry, PO Box 165, Daylesford, 3460, or leave message at (054) 734362.

Is there anyone in South Australia interested in setting up a co-operative country housing association, based on alternative methods? There is a 'housing trust' scheme which helps low-income people obtain low rent housing of their choice. If you're interested, please write to: Clare Risdale, c/- Post Office, McLaren Flat, South Australia, 5171.

Down To Earth CONFEST

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This year's DTE ConFest will be held at Walwa, 70 km from Albury/Wodonga, on the Murray River. $45 at the gate for five whole days. ConFest is the sort of event you'll be glad you went to. Confest is music, workshops, learning, and fun. Contact DTE at PO Box 321, Richmond, Vic, 3121, for more information.

•continued from page 51

In the Half-Light, Life as a Child in Australia, 1900-1970, Angus and Robertson, $24.95, hardback.

HERE is a great book. A book to keep on your shelf and re-read several times. It's the account of extraordinary, ordinary childhoods in Australia over a period of 70 years. Children are often said to live 'in the half light' of perception and experience, but it soon becomes apparent from the people remembering their childhood in this collection, that adults vastly underestimate children. Remembrance of pain, of happiness, of embarrassment and simple joys, of acute perceptions and helpless conformity — these all illuminate the marvellous accounts in this book.

There are vast differences between the children profiled in these pages — in social background, origin, period — but they all have something valuable to offer, something thoughtful to say.

I have only one quibble: when introducing each person, there is often reference made to photos that the editor and the contributor are looking at. Yet the photos accompanying the text, while they are superb, do not correspond with these descriptions — in fact, they have nothing at all to do with the people telling the stories. It is only a small fault, and I heartily recommend this book.

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EG2: Start a garden . . . Neil Douglas . . . Keyline system . . . Kiewa farms . . . drying and storing food . . . hydroponics . . . recycling garbage . . . nutrition.

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EG4: The honey bee . . . back to the land in Tassie . . . the transition . . . black sheep . . . tanning . . . candles . . . bread . . . donkeys . . . a wall-hanging.

EG5: The wind — windmills . . . windpumps . . . generators . . . raku pottery . . . Cinva ram . . . poultry . . . Hamburghs . . . moon planting . . . fallout shelter . . . vegan way.

EG6: Solar 1 — sun cults . . . solar cooker . . . sundials . . . Lost World . . . Clifton Pugh . . . concrete house . . . Shalom . . . Cajun cookin' . . . horses . . . spirit of Nimbin.

EG7: Solar 2 — hot water . . . Mudbrick techniques . . . Angora goats . . . make a leather bag and belt . . . mushrooms . . . natural dyes.

EG8: Gas power — methane digester . . . by truck to Tassie . . . cumbungi hats . . . inkle loom . . . candles and tapers . . . country cottages . . . A-frame . . . school gardens . . . sourdough.

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EG12: Keeping food — drying . . . salting . . . bottling . . . storing . . . tahu . . . tropic delights . . . plant propagation . . . plans for a solar water heater . . . solar stills and cooker . . . Moora Moora.

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EG15: A Lytel Herbal — growing and using herbs . . . text and illustrations from the classic 16th C herbals . . . modern commentary . . . Index to EG15.

EG16: A Lytel Herbal (Part 2) — comfrey, lavender, wormwood, yarrow . . . poultry shed . . . peafowl . . . goats . . . basic beekeeping . . . rammed earth building . . . hydraulic ram.

EG17: Fencing . . . dry stone walls . . . make soap . . . nets . . . pole shelter . . . breeding black sheep . . . The Autonomous House . . . asparagus . . . Aeolian harp . . . ducks . . . Khaki Campbells.

EG18: Fruit garden . . . oranges . . . lemons . . . olives . . . nuts . . . tropical fruit . . . fodder trees . . . road building . . . wood fired kiln plans . . . Cinva-ram cottage . . . sunflowers . . . homebirth.

EG19: Wood heat — pot bellies . . . Jotul . . . cooking . . . making a quid . . . build a storage cellar . . . bushfires . . . stonefruit . . . macadamia nuts . . . binding your EGs . . . tree planting . . . budding.

EG20: Apples . . . pears . . . cordon and espalier . . . build a haybale pig house . . . pollen . . . rose hips . . . mudbrick flats . . . solar homes . . . gourds . . . preserve fence posts.

EG21: Womancraft — all articles by women . . . earthly arts . . . axewomanship . . . glove puppets . . . spinning . . . weaving . . . easy rugs . . . Sumatran house . . . old roses . . . index (EG10-20).

EG22-23: Australian Access Sourcebook . . . 150 pages . . . Aborigines . . . organic growing . . . permaculture . . . earth building . . . wind . . . solar . . . water power . . . technology . . . water supply . . . access to groups, plans, books, tools.

EG24: Place — 24 new settlers write . . . Mare Carter . . . Ron Edwards . . . Neil Douglas . . . Gundaroo Store . . . Rainbow Region . . . Mt Oak . . . Moora Moora . . . Universal Brotherhood . . . bush ashram.

EG25: Australian Access Sourcebook (Part 2) — 130 pages . . . livestock . . . aquaculture . . . fencing . . . killing . . . tanning . . . food and nutrition . . . grain grinders . . . solar homes . . . methane . . . greenhouse . . . Dorothy Hall.

EG26: The earth-built kasbahs . . . owner built homes in stone . . . timber . . . mudbricks . . . a slab cottage . . . tree felling . . . solar electrics . . . acorns . . . compost dunny . . . quandong . . . pumpkin recipes.

EG27: 100 tropical food plants for Australia (part 1) . . . 16 legumes . . . winged bean . . . pigeon pea . . . lablab . . . cowpea . . . adzuki bean . . . blacksmithing . . . bluestone building . . . wok cooking.

EG28: Tropical food plants (part 2) . . . horse and buggy . . . packhorsing the Alps . . . black sheep . . . Merinos . . . bullocks . . . tamarillo . . . stringybark baskets . . . solar trike . . . persimmons.

EG29: Mudbricks — the monastery at Stroud . . . Bob's bonza brickmaker . . . earth floors . . . curved walls . . . herb roof . . . cutting axe . . . low energy design . . . coconut mats . . . mangoes . . . tropical food plants (part 3).

EG30: Organic growing — compost heaps, pits, trenches, boxes, bins and barrels . . . no-dig . . . mulch carpets . . . semi-arid growing . . . preserving figs . . . tempeh . . . pasta . . . glass bottle windows.

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EG32: Year of the Tree — St Barbe Baker . . . tree tales . . . how a tree works . . . farm tree . . . native from seed . . . coppicing . . . Neil Douglas interview . . . cob building . . . log house (part 2).

EG33: Tenth anniversary issue . . . timber felling . . . lifting poles . . . post and beam design . . . log house (part 3) . . , parquet floors . . . backyard rabbits . . . goats . . . fowls . . . dry pit loo . . . portable henhouse.

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EG37: HARD TIMES . . . making paper . . . newspaper fuel . . . rags to rugs . . . barter . . . slush lamps . . . sawdust stoves . . . Depression dodges . . . hand grain mills . . . 120 household hints.

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EG39: Build Peter Pedal's bike wheel wind generator . . . fire without matches . . . bushfire defensive house . . . avocado growing guide . . . rosehips . . . car battery power . . . farm energy . . . backyard food.

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In our last issue

EG 63: Special 'Bicentenary' issue — Aboriginal Australia and self reliance . . . Traditional shelter and agriculture . . . Rangers at Kakadu . . . Gary Foley interview . . . Mudbrick desert community centre . . . 19th Century Aboriginal farmers . . . low voltage washing machines . . . Roofing tips . . . Battery warning . . . Fostering calves

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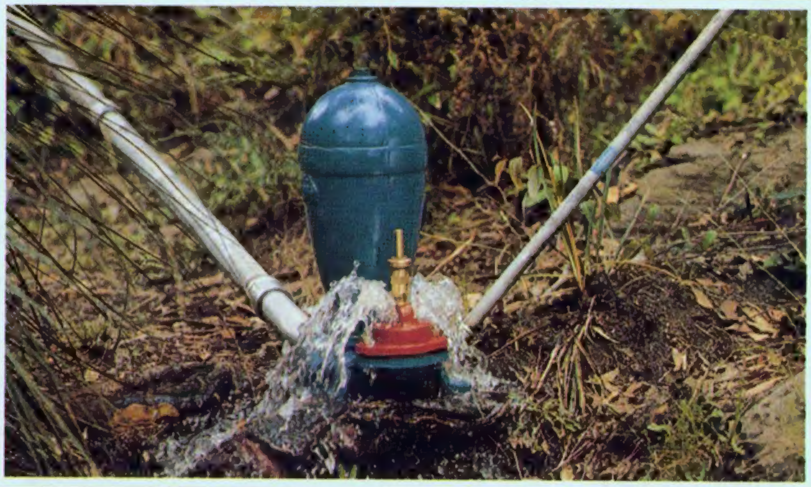

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